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Tuberculosis Eradication*

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THE Chief of United States Live Stock Sanitary Association has for twenty-two years adhered to the precept of Section 2 of its Constitution, which is as follows: "The purpose of this association shall be the study of sanitary science and the dissemination of information and methods pertaining to the control and eradication of infectious diseases among live stock".

This association has been the leader in stimulating investigational work, in getting the results before the people, and in setting forth the measures to be employed in combatting the ravages of disease. In this way, it has striven to be of service to the owners of live stock throughout our nation. It has been in the front in every time of anxiety caused by the outbreak of a disease. It has been calm but serious, sturdy but not arrogant, perceiving but not obscured by the radiance of false lights, progressive but not egotistical. It has striven to stimulate the growth of our live stock industry upon a sound foundation, to perpetuate it in the direction that future generations may not only be proud of the great achievements gained in the production of immortal sires and dams, who have attained eminence by establishing records on the track, in the ring, or at the milk pail, but by maintaining the health of these animals, which is, after all, the buttress upon which any branch of the live stock industry may be perpetuated. What would it avail the individual owner or the nation as a whole, to lay claim to a great cattle, horse, sheep, swine, or poultry industry, if these classes were undermined by the ravages of tuberculosis, infectious abortion, glanders, and the diseases peculiar to other branches.

The efforts put forth and the results accomplished by this association during its existence have been worth millions of dollars to the United States. Every movement of importance along live stock sanitary lines for more than twenty years has been dependent upon this body and the American Veterinary Medical Association, and the people should know and recognize this fact.

When the time arrived to attack tuberculosis with the motive in mind to eradicate it from all our live stock, this body was ready to give the movement the impetus that will be potent as long as will be necessary even if it be for several decades. You, fellow members of this great institution, fully appreciate the magnitude of the enterprise we have embarked upon. To be sure, optimism has filled none of us with more than a reasonable degree of confidence, but we have no room for pessimism and its devitalizing influence. Tuberculosis must be eradicated if it be possible to accomplish that result, and it is believed to be a possible achievement in view of

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our experience with the disease covering a period of years. We have too much at stake not to resort to every means that may be put into practice at any time, to extirpate this insidious foe. We are compelled to consider this disease from a national standpoint rather than from forty-eight sectional view points. The live stock industry of each state is but a part of the agricultural resources of the nation. The greater the productivity of the cattle industry of one commonwealth, the larger will be the resources of the Union. The deeper disease preys upon our cattle, be it in the North, South, East, or West, the lower will sink our resources. The live stock belongs to the individual, and our political system encourages the development of enterprise among its citizens. We may sell them, kill them, give them away, traffic and barter with them, in any way we choose just so long as they are all sound in health; but, should they, at any time, become diseased and be a source of danger to the stock of our neighbor, the law, which is made for all the people, restrains us under the police authorities of the state of federal governments, from jeopardizing the health of other animals.

We Are Trustees of Great Industries

Our live stock wealth is prodigious—the largest of any nation in the world. On January 1, 1918, the cattle in this country were valued at $3,159,221,000, and swine valued at $1,361,242,000. To safeguard this property this association, kindred organizations, live stock sanitarians, and the veterinary profession have dedicated themselves. They are the trustees of the health of these great industries and will be charged with delinquency should any great animal plague overwhelm us.

The several impending disasters which threatened the future welfare of live stock were checked and put to rout by the veterinarians and live stock sanitary officials and not by any other agency. It is true that the live stock owners and business organizations contributed valuable moral aid, but it is repeated that the measures employed which successfully accomplished the eradication of these outbreaks of disease were conceived and executed by the aforesaid agencies. It is a fact recognized in all campaigns of disease eradication that the primary principle to put in operation is to stop absolutely the dissemination of infection by disease-bearing persons or animals, as demonstrated by the extraordinary measures employed during the recent outbreak of Spanish influenza. The closing of schools, churches, theaters, public assemblies of all kinds, the closing of state fairs the first day of celebration, all these restrictions are far more stringent than the measures employed at times to hold in check infectious diseases of animals.

The congress of the United States recognized that principle when, in 1884, it provided in Section 6 of the Act approved May 29, that no person, firm, or corporation shall move or permit to be moved interstate any animal affected with any contagious, infectious or communicable disease, except that cattle infected with the tick may be moved for immediate slaughter. The opinion prevails quite generally in the southern states, that if it were not for that exception the entire tick area would now be cleaned up. There are a number of dealers in ticky cattle who object to the progress of tick eradication, just as there are hundreds of people who claim that the tuberculous cow is not dangerous and nothing should prevent any person from dealing with it either within a state or for interstate shipment. The law, however, states that neither a tuberculous cow nor hog may be moved from the confines of one state into any other state or into the District of Columbia, but, as a matter of fact, they are moved every year by the thousands. It might seem that some official is derelict in his duty in not checking that traffic, and not prosecuting the perpetrators. The reason, however, that the latter course is so infrequently followed is due to the difficulty in obtaining positive evidence that the consignor knew at the time the movement was made that the animal or animals were actually diseased. We may have knowledge that a certain person deals almost exclusively in tuberculous cattle, but it is more difficult to convict such a person than is usually believed, a demonstration of which is shown by the length of time it took to obtain the evidence to convict a notorious dealer in tuberculous cattle, who is not unknown to this assemblage and, alas, is not without notoriety in a large number

of states. The misguided person was convicted by a jury of his peers and sentenced by the presiding federal judge to eight years imprisonment in federal penitentiary and to a fine of $3,000. The damage he did to innocent victims was very great, but the retribution he reaped will cause him no end of anguish and should he devote his idle hours to the study of tuberculosis, he may yet render assistance in this campaign. "Leave him to heaven and to the thorns that lodge within his bosom to sting and prick him."

Extent of Tuberculosis in America

The more we study plans for the eradication work, the more forcibly are we impressed with the strategic importance of having a large area of the country comparatively free from bovine tuberculosis, a condition which is as pleasing to know as it is fortunate to experience. We have learned through cooperative efforts and through the splendid work done by many of the state officials and private veterinarians, that at least the majority of the square area of the United States contains but little tuberculosis. It is probable that in that great area the disease exists in less than one per cent.

The majority of the tuberculin testing done in those states where we believe the disease exists to such a limited degree, was confined to herds within close proximity to towns and cities into which cattle have been introduced from other states. For illustration, since the inauguration of cooperative work in the territory referred to, the total number of cattle tested shows a slight degree of infection. Many of the reactors were cattle recently imported from other states, or animals which were closely associated with the recent importations. In the muscle shoal district of Alabama 1,400 cattle were tested without one case of tuberculosis being found.

If you will grant that we are so fortunately situated with respect to this disease, will you have any doubt as to the action that should be taken? We believe that the proper thing to do now, is to remove from those states the tuberculous animals and prevent, insofar as it is possible, the introduction of animals affected with that disease.

How May we Best Protect the Free Area from Tuberculosis

The effect of restrictions governing the interstate movement of live stock, upon a state or group of states has not meant destruction and bankruptcy for the industry affected, as you can all attest. Did the rigid quarantine placed around the sheep-raising states for scabies put the sheep men out of business? Did the quarantine regulations requiring a rigid inspection and dipping if disease was found, prove a menace or a benefit to the legitimate sheepman? There was considerable grumbling when that quarantine line was established, but because of the wise provision to prohibit the interstate shipment of scabby sheep there developed in what are known as sheep-raising states an industry that is notable for its great efficiency. When the regulations were issued to prevent the shipment of scabby cattle from numerous sources, they were ridiculed. Some railroad superintendents refused to hold cattle in loading pens until they were inspected and a few unthinking shippers cussed out the inspectors as a pack of know-nothings. Because of those temporary inconveniences, however, a great catastrophy was avoided, scabies was cleaned up or so reduced that the losses caused by it were relatively small. Was the South ruined by the quarantine imposed to restrict the northern movement of the cattle tick? Out of that quarantine came the emancipation of the cattle industry. The South now realizes that had the quarantine regulations in recent years been so rigid as to have prohibited absolutely the interstate shipment of cattle infested with ticks, even for immediate slaughter, the quarantine area would now be entirely free instead of being reduced nearly 70 per cent. At four annual meetings of the Southern Cattlemen's Association resolutions petitioning Congress to tighten up on the regulations have been adopted. Were the several quarantines promulgated in connection with foot and mouth disease ruinous to America's live stock? Without those quarantine measures we would now be shackled to that disease forever.

In view of our past experiences, shall we go on year after year, victims of our own indecision, or shall we have the temer-

ity to face the tuberculosis menace as we have the previous foes? Is tuberculosis the master of us? Is it to be conquered or not? In all previous conflicts with disease the old U. S. A. has never come out second best, and for two reasons: First, it has had the support of the people, which is, at least 50 per cent of the battle, and secondly, it has attacked with efficient organizations. It would be as ridiculous to undertake to eradicate tuberculosis without a good organization as it would be for the allies to attempt to whip the central infernal machine with its forty years of preparation, without a well directed, uniform effort. From the day that America forced the allies to agree to concentration of effort the whole war aspect changed.

If individuals are to fight this great fight of exterminating the most insidious disease live stock is subject to, then we have departed from all methods which heretofore have produced satisfactory results. If the Department is not laboring under a misapprehension, it interpreted the instructions contained in the item to eradicate tuberculosis passed by Congress, to go forth and be of service to the live stock producers of America. Individual effort, no matter how skillful it may be, is absolutely limited in its power to accomplish results, both by lack of authority and by restriction of the field of activity. In order that the campaign for the eradication of tuberculosis may achieve the success it justly deserves, the full cooperation and assistance of all those interested must be obtained, and this is especially true in the case of the veterinarian engaged in private practice. He has engaged in the tuberculin testing of cattle for many years and has accomplished a creditable amount of good results; but it is believed that much more could be accomplished by having the work more uniform and under official supervison, as far as possible.

It has been said that "the practicing veterinarian cannot be expected to give the campaign his full support when he is deprived of some of the means of livelihood, which are received from tuberculin testing of cattle." When tuberculin tests are made by state or federal veterinarians the owner of the herd is not required to pay for the testing, and this may, of course, result in the practitioner losing some business. Under the rules of the uniform plan for accrediting tuberculosis-free herds of pure-bred cattle, it is required that tuberculin tests be made by a veterinary inspector of the Bureau of Animal Industry, U. S. Department of Agriculture, or a regularly employed veterinary inspector of the state in which cooperative tuberculosis eradication work is being conducted. The veterinarian engaged in private practice is in position to render very valuable service to this campaign, which is in the interest of the nation's great live stock industry. He is in a position to encourage the accredited-herd plan, as he is in daily contact with the breeders of cattle in his territory, and thereby induce many owners to place their herds under, and to cooperate with official supervision.

The campaign is now a national problem, and must be officially conducted; but as it will be impossible for the states and national government to furnish sufficient help to tuberculin-test all of the cattle in the country, the veterinarian engaged in private practice will naturally be employed by the owners to make tuberculin-tests in a great many cases.

These veterinarians will be in touch with the official veterinarians, making it possible for them to consult, without much trouble, with those officials when necessary; and the plan of having official veterinarians stationed in various parts of the country, will be the means of having the tuberculin-test uniformly conducted. The official testing of herds of cattle without cost to the owners, may temporarily diminish the amount of test work done by the private veterinarian; but, ultimately, his business will be greatly increased, as he will be called upon by the hundreds of owners who now test only when they are compelled to in order to ship an animal interstate. These owners will sooner or later appreciate the fact that they must clean up their herds and keep them healthy, in order that they may enjoy the patronage of buyers who are intent upon dealing only in tuberculosis-free cattle and only with the owners of tuberculosis-free herds. That is the history of veterinary practice in every section of the United States where official eradication work has been carried on.

Take the area where tick eradication has been carried on. At one time in the South a considerable part of the veterinarian's income was derived from fees obtained for treating cattle attacked by tick fever; but as soon as the veterinarians of the southern states were aware that a campaign "was on" for the complete extermination of the tick, they put their shoulders to the wheel and did yeoman's service in putting that work across. Intimately associated with tick eradication for eleven years, the speaker is proud to state that he never has known, nor never has heard of one qualified veterinarian who opposed that work because it was depriving him of "bread and butter," or for any other reason. We must of necessity, work together in this great campaign with the same high ideal to guide us, namely, to preserve, protect, and perpetuate a greater and grander live stock industry.

Plan of Co-operation Suggested

The following plan of co-operation between the live stock owners, the state and federal departments and the private veterinarians for the control and eradication of tuberculosis is submitted for your consideration. Herds of cattle which have been accredited by the state and federal departments for a period of three years from and after September 1, 1918, and which have been annually tuberculin-tested by officials of those departments in accordance with the uniform plan, may be placed under the supervision of a private veterinarian approved of by the official in charge of live stock sanitary work in the state, for a period of three years, at the expiration of which time all such herds shall be tuberculin-tested by a regularly employed state or federal veterinarian. If any tuberculosis is found in any herd at that time, it shall continue under official supervision, until the disease has been eradicated, and until such time as the herd has been found free by a tuberculin-test, two years after which it may be placed under private supervision for three more years. In circumscribed areas wherein tuberculosis is being eradicated, it is recommended that the local veterinarian, or as many as may be advantageously used, be jointly employed by the state and federal department during the period required for the testing of the cattle and as long thereafter as is considered necessary. All herds found to contain tuberculosis shall be regularly tested under supervision until the disease has been eradicated.

Methods Employed in Eradicating Tuberculosis

It is the people's cattle from which tuberculosis will have to be eradicated, therefore, we must know the people's attitude toward our endeavors. We cannot assume that because a few enthusiastic progressives in a community are committed to a plan to carry on a county wide campaign for tuberculosis eradication, that the time is favorable to begin operations. In some communities a few leaders can actually accomplish any public work they set out to do. If you are in such a community and actually know you have the right folks back of the work, it may be advisable to start operations. As a general principle, it is believed that it is a good plan to let the people decide for themselves whether or not a county wide tuberculosis eradication campaign shall be carried on. The advantage of a referendum over the petition is that once it is carried there is little chance of repudiating that action; whereas our experience shows that one cannot depend upon some of the people who sign petitions asking for such work. It has frequently happened that the same persons have signed two petitions, one for, and the other against the same proposition. One thing is certain, you cannot make satisfactory progress until the people are in the mood, at least a majority of them, and for those who are opposed and obstinate you must have a coercive remedy, distasteful as it is.

The most onerous task that befalls an official is to encounter a recalcitrant lady. We have records of three exasperating cases showing the necessity of having ample authority to enforce sanitary regulations. What made the cases so difficult was the fact that all three defendants were females with all the characteristic vicious proclivities of the so-called sterner sex. The first case was that of Miss Elsie Bradford, a mountaineer by birth and a veritable tiger by nature. The lady, who presided over her own domicile, owned some ticky cows.

which she refused to disinfect. The inspector, who considered discretion the better part of valor, after several arguments with the owner, decided upon the policy of visiting the herd by entering the pasture from a point farthest from the house. At the most favorable moment, he together with his assistant, would pick the ticks off Elsie's cows and then grease them bountifully with Beaumont oil. Upon one clandestine call the officials were intercepted by the tempestuous lady, who came "over the top" at them fully prepared to protect her property by the aid of a blue steeled colt. To clean up that herd, it was necessary for a grand jury investigation at every term of court. That woman would employ the best counsel that she could induce to defend her and would apparently with pleasure pay out large fees to defeat a work which was intended to be of benefit to her.

The second case was that of Mrs. Young, a vivacious auburn-haired matron of full maturity and pronounced views upon live stock sanitary control work. It was necessary to have fourteen separate and distinct warrants issued for her for failure to dip her dairy herd of thirty cows. After conviction, rather than comply with the law as other people did, she sold out her business.

The third case was Mrs. Cherry, who was indicted twelve times for failure to dip her cows. She too employed three attorneys outside of her county (as not one lawyer in Autauga County, Alabama, would defend any person for violating a tick eradication regulation) to defend her. After being convicted in the first case and paying a $75.00 fine and a $50.00 fine upon conviction in the second case, she threw herself upon the mercy of the court and thereafter complied with the law.

This is by way of emphasizing the importance of being able to finish what you start out to do. If it is not your purpose to enforce regulations when you engage in the eradication of a disease, your success will be extremely limited. If you say that it is impossible to enforce regulations, the reply is the work you are attempting to do is not worthy of support, or you have compromised it.

If the county selected is a dairy section or if the herds are small, arrangements should be made to have all small herds brought to central testing stations, where one inspector may in twenty hours test as many cattle as it would take him ten or twenty days to test, should he visit each farm. In sections where beef cattle predominate and under range conditions, the intradermal method may be employed. The inspector may inject cattle for at least two days and possibly more, and at the expiration of the forty-eighth or seventy-second hour he may make his observations. It is considered advisable, if possible, where reactors are found to the intradermal test to retest the herds subcutaneously, also using the opthalmic test at the same time.

Three Tests Used Advantageously

It is believed that all three tests may be used to advantage in cleaning up herds affected with tuberculosis. It is believed that diseased herds may be cleaned very much quicker by the judicious employment of all three tests. None of them are perfect, and we should be particular to emphasize that fact. We can avoid many embarrassing situations by letting the people know that tuberculin, the best diagnostic agent known to science, has its limitations, but when we consider the accuracy of tuberculin, how insignificant it makes man feel as a diagnostician!

In some sections of the country, many people have lost confidence in the tuberculin test; this is unwarranted because that product if it is made properly, is as reliable today as when discovered by Koch. We know now that cattle which have been repeatedly injected with tuberculin, in some instances are practically immune to the thermic test, but such cattle will, in many instances, react to the opthalmic or intradermal tests or both, or vice versa. All three methods have their commendable virtues as well as some imperfections. We should not claim infallible qualities for tuberculin. Let it be known to all that occasionally tuberculous animals fail to react to any form of test applied to detect its presence; also that in rather rare instances animals react to the test which show no visible lesions of the disease. The microscope and guinea-pig inoculation are valuable aids in recognizing obscure cases of tuberculosis. Let us stand by the tuberculin test as a true friend should stick to his comrade, but let

us be true to ourselves and the people we are working for and we will get along all right.

In most of the diseased herds there may be spreaders of the disease, and, until they are eliminated the prospects of exterminating the disease are not favorable. The spreader may be an animal that has been tested many times, or has acquired partial immunity to tuberculin. If the opthalmic test will detect such animals, the progress that has been made toward the desired end may easily be seen.

In diseased herds, a retest within six months is considered advisable, and, under certain conditions, an additional semi-annual test may be resorted to. After each test, when reactors are found, the stables and other sheds where the cattle have been should be thoroughly cleaned and disinfected. This should be done occasionally, whether or not there are reactors.

Unfortunately, it is impossible to outline a positive plan, which, if faithfully practiced for from ten to twelve months, will transform a diseased into a healthy herd, as may be done in the eradication of other diseases. In Texas fever, nine month's dipping of cattle in arsenical solution every two weeks, will positively eradicate the tick from any given area where the plan is followed. No plan has yet been evolved for the eradication of tuberculosis, that can be applied in its entirety in every state. What may prove highly successful in one section, would be inapplicable elsewhere. For instance, to advocate the destruction of all reactors in a state where 20% of the cattle are affected, would be inadvisable. To attempt to slaughter all reactors where the percentage is in advance of that would be criminal waste, but to fail to destroy tuberculous cattle in states where there is less than 2% of infection would be equally unfair, unsafe, and unwise. To determine the number of diseased animals in a given area it is, of course, necessary that all shall be tuberculin tested. The length of time it will take depends upon the number and the methods employed. If you can organize the work so that the people will bring their cattle to central points, five veterinarians with the assistance of the owners, may test several thousand cattle each month. At least they will be able to do that, when the plan is fully perfected. Remember we are only beginning this work and do not say it "can't" be done. A lot of people thought that it was impossible to dip all the cattle in a county within a month, but, for some years the people have been dipping all the cattle in many counties twice every month. During August, 1918, 6,189,398 cattle were dipped in the counties under supervision.

Carefully Considered Policy Necessary

Most certainly a carefully considered policy should be provided for, before the campaign is inaugurated in any state. The establishment of tuberculous herds under supervision may prove a wise solution of the problem in badly infected sections. Herds containing a large majority of reactors should be classified as wholly tuberculous; herds containing less reactors should be divided, the healthy animals being retained and the others moved to separate farms, preferably to farms maintained exclusively for diseased herds under supervision.

A closing word relative to methods employed or to be employed in eradicating tuberculosis. As the work proceeds, better plans will be worked out. We expect that from every locality where the work is carried on, improvements in the present plans will be made. It is the common duty of all to report through a paper or by correspondence, whatever changes have been found helpful. In that way, we may work out this great problem together.

How Tuberculosis is Located Now

Through inspection service we receive daily reports on Form 11-C, indicating the shipments containing tuberculous swine and cattle. That report gives the name of the producer, feeder, or shipper of the animals, the county whence they came, and other data sufficient to attach proof as to the farm which is contributing the disease.

It is interesting to know the source from which disease emanates, but, doth it avail much? Perchance one hundred shipments come from a certain state, maybe as many from one county in the course of a twelve-month. For statistical purposes, perhaps that is of great value, but perhaps those producers do not believe in eradicating tuberculosis; they do not want to be bothered by inspectors; the state has no means or

ways to interest them. It really isn't necessary to search for areas in which the live stock are tuberculous, there is enough work on hand now to engage the full time of all the possible available help for the next twenty years.

It isn't a matter of locating tuberculosis. There are states where at least thirty per cent of all the herds are diseased, therefore scientific investigations to ferret it out are superfluous. It is, on the other hand, the science of the human soul to perceive of those sections and people which are now prepared to undertake the extermination of the disease. If the time ever arrives when we are working on the eradication of the last diseased animal, then we may be justified in employing investigational measures to detect tuberculosis other than the efficient tests we now, so fortunately, have at our disposal.

Indemnification to Owners of Tuberculous Cattle

Congress has made it possible for the Department to help every state to help itself in eradicating tuberculosis, by paying partial indemnity to owners of diseased cattle, when the slaughtering of them is considered the better course to pursue. The act itself provides upon what basis the indemnities shall be paid. It does not authorize the Secretary of Agriculture to promulgate and issue regulations prescribing how much may be paid for each diseased animal, neither does it permit elasticity to conform to the indemnity plans of the respective states. It absolutely fixes the rate of compensation not to exceed $25 per head for grade cattle and not in excess of $50 for a pure-bred animal. These amounts are paid provided they represent not more than one-third of the difference between the appraised value of the animals and the salvage obtained for same.

Further provision is made that the Department cannot pay more than the amount paid by the state. A pure-bred registered animal reacted to a tuberculin test applied by a regularly employed state or bureau inspector engaged in cooperative tuberculosis eradication. In accordance with the state law it was appraised at $200. When destroyed in the state in which it was condemned it brought $75 for beef, making a loss of $125. If the state will pay or agree to pay the owner $50 or more, the Department may also pay him $50. In that way he would be almost fully reimbursed for the appraised value of the animal. Of course the proper thing to work for, is a standard of methods of appraisement; something that will be stable, so that all agencies interested may harmoniously blend their regulations so as to make the plan workable in every state. The Bureau will cooperate with the live stock owners and state officials in obtaining such an equitable plan.

Accredited Herd Plan

The fact that a body of gentlemen representing the pure-bred cattle associations and live stock sanitary officials, in the course of one evening agreed upon a plan of accrediting tuberculosis-free herds of cattle, is a most splendid indication of the spirit of unanimity of all live stock interests to make it as safe as possible for prospective buyers to obtain healthy cattle. The uniform plan, as you know, is the instrument of this association. It was adopted December 4, 1918, approved by the Bureau, December 23, 1918, and endorsed by practically every state within sixty days. It is a workable plan, not without room for improvement, of course, but, before it is changed, let us determine the needed changes by actual operation rather than by apparent needs. Our committee on tuberculosis will be glad to receive suggestions from cattlemen, sanitary officials, or from other persons respecting tuberculosis, and will, whenever considered advisable, submit reports to this body with its recommendations.

List No. 1, containing the names of the owners of herds fully accredited also the names of owners of herds which passed one successful test in preparation for being certified as fully accredited, was compiled with painstaking care. Fifty thousand copies of that publication were distributed recently to live stock owners and other interested agencies throughout the country. It has been the means of stimulating further interest in tuberculosis eradication work. Errors, most naturally, appeared in the list, but in the future we shall endeavor, with our wider knowledge of the names of the breeders, to avoid all inaccuracies, as far as possible.

A beautifully engraved certificate was

issued to each of the owners of accredited herds. In the preparation of a new form of certificate, several changes will be made and, if desired, it will show the name of the cooperating state. It shall be our pleasure to make such changes as are considered best for the welfare of the work we are mutually engaged in.

Conclusion

In the course of twelve months any large body of earnest workers will find many things to suggest for the improvement of the task in hand. We all are better acquainted now with cooperative tuberculosis eradication work than a year ago. We have each benefited by the improved methods suggested by our fellow co-workers. Let us go on in that way, one helping the other, all working to build up an organization that will have no other aim than to be a credit to this association and a service to the live stock industry of our country, a nation whose principles are so altruistic that it would abandon an epoch of peace and prosperity greater than was ever enjoyed by any other people under God's skies, to take up the sword to battle for the freedom of ravaged countries and for the preservation of the doctrines of our immortal heroes of 1776, who fought and died for the cause of liberty so that we, their sons, might enjoy the rights of free men. As our gallant and beloved brothers in arms have made the world safe for democracy, let us, who were denied the privilege of fighting by their sides, do our bit in helping to make the herds of the United States the largest, the finest, and the healthiest in the world.

Equine Colics

By W. J. MARTIN, V. S., Kankakee, Ill.

IF diseases of the digestive organs of the horse do not outnumber all other forms of the animal's diseases, they at least form a considerable part of them. One writer on this subject estimates that fifteen per cent of the deaths occurring among horses, are due to colics, and that forty per cent of all the ailments of horses are due to diseases of the digestive system.

In a paper of this kind it would be impossible to give even a resume however brief of the many different diseases of the stomach and intestines of the horse that come under the classification of colics, hence it is the intention to confine my remarks to a condition so commonly met with in daily practice, viz.: impaction of the small and large intestines.

Impaction of Small Intestines.

After a great deal of study and investigation of the diseases of the small intestines, I have come to the conclusion that impaction is not of common occurrence. Twists, volvulus, verminous aneurism, etc., cause by far the majority of the derangements of these organs. Impaction in the small intestines, is frequently found in the ileum and at the ileo-cecal entrance of the cecum. Impaction of the cecum occurs more frequently I believe than is usually supposed, it often being overlooked entirely or the trouble attributed to other causes. My experience shows, that the majority of intestinal impactions will be found located in either the single or double colon, and of these, the double colon is most often the seat of the obstruction. When I speak of impaction, fecal stasis is meant, and the conditions that such stasis give rise to, viz., twists, dislocations, intussusceptions, etc.

Fecal stasis may be due to one or to several causes that ultimately end in serious pathological conditions. Overfeeding, feeding innutritious foods (woody foods), hard and prolonged labor, lack of proper exercise, slight or serious nervous derangements, and many other causes, the origin of which may be entirely unknown or overlooked. Sudden climatic changes are prolific causes of intestinal disorders. In most cases, overfeeding is common. Lack of proper exercise is also a prolific cause of intestinal impaction, especially in young healthy animals. In such animals the amount of food ingested exceeds the amount digested and eliminated; the resi-

*Read at 37th annual meeting of the Illinois V. M. A., Chicago, December, 1918.

due being gradually packed into the intestines by their vermicular motion. This form of impaction is common in robust animals accustomed to hard daily work, that have been suddenly laid off from work and kept on full feed. The process of impaction in such animals may extend over a period of several days before symptoms of colic appear. This form of impaction may at times give rise to acute gastric and intestinal flatulence, though most of these cases are more apt to present a type of marked dullness, no tympany, a sluggish pulse, dry or dirty gray-colored mucous membranes, slight rise of temperature, tucked up abdomen and intermittent pain. The conjunctiva is also more or less congested.

Impaction of Large Intestine

Impaction of the large intestines often occurs in old brood mares that are in an advanced state of pregnancy. It is due to the weight of the fetus on the maternal intestines. Such a condition is designated in large breeding establishments, "Colt colic." In country districts, especially in the corn belt during the winter season, where horses subsist largely on corn, with cornstalks and straw as roughage, owing to the large amount of undigestible material contained in such a diet, colic impaction is of common occurrence. An insufficient supply of drinking water is often an important factor in causing impaction, especially in impaction of the cecum. In impaction of the ileum, the cecum, the double colon, the single colon or the rectum, rupture may occur. Impaction of the cecum is primarily if not wholly due to an insufficint supply of water. Physiologists state that the function of the cecum appears to be that of a reservoir, a storage basin, if you please, of a water supply for the entire intestinal tract. I believe that there is a large modicum of truth in this statement, because when the cecum becomes impacted, death almost invariably occurs in spite of the most energetic efforts of the medical attendant to relieve the condition. Impaction of the ileum only, in my opinion, occurs but rarely. It is almost always found in connection with impaction of the ileocecal valve and the cecum and it presents no special diagnostic symptoms to differentiate it from other forms of intestinal impaction.

Obstructive Colic

In this form of colic, as stated above, the symptoms, as a rule, are classical. In the early stage of the disease, the pains will be less sharp than in other forms of colic. The pains are dull; pulse nearly normal; temperature in the majority of cases in the early stage is normal or nearly so; in some cases it may be slightly subnormal. The visible mucous membranes injected with a dirty gray dry surface; mouth dry and hot, tongue coated with a tenacious sticky mucous. The animal when down will often sit upon its haunches dog-fashion or if standing, will back up into a corner or against a manger and rest the hind parts upon it. Some show considerable itching or irritation in the hind parts, and attempt to rub them violently. Some authors state that the attacks come on shortly after eating. This is contrary to my experience in which in the greater number of cases the pains ensued several hours after feeding. Peristalsis is almost always completely suspended, though in a few cases a slight movement on careful auscultation may be detected. Examination per rectum will, as a rule, cause violent straining and the lining of the bowel will be found hot and sticky, the organ having a marked tendency to cling tightly to the arm. In other cases, the intestine may be "ballooned", though in my experience, this is by no means common. Some authors state that as the overloaded intestines press on the bladder, frequent attempts will be made to urinate. I think this is a misinterpretation of a symptom, and that such action is due wholly to pain; in fact I consider this stretching forward of the fore limbs as if to urinate, a characteristic symptom of impaction, for as soon as the impaction is relieved one of the first acts is free urination.

The duration of obstructive colic naturally varies according to the amount of obstructing material and its location. Where the amount is small, and proper treatment is adopted early, recovery will be rapid; in fact, many such cases recover without treatment. In such cases, the fecal mass simply resumes its onward movement and pain ceases. In other cases, where the fecal mass is of large dimension more time will be required by nature and medicinal treatment to move it onward and outward. Such cases may range all the way from twenty-four to thirty-six hours, up to ten

days, or longer. I am now speaking about the ordinary cases in which recovery takes place. The longest period I have observed, was five days, with complete recovery.

There is no other class of diseases of the horse in which so many and diverse forms of medication are used as in these intestinal disorders. Medicinal agents that are totally contra indicated and physiologically antagonistic in their actions are recommended to be given at one and the same time to overcome the existing trouble. With one hand opiates will be given to overcome pain, while with the other purgatives are given to overcome the obstruction. Some give stimulants and nerve tonics; some advocate stomach and rectal lavage; some condemn this treatment; some advocate the use of alkaloidal cathartics hypodermically in large doses in the early stage of the disease; others combat this method and advise small and repeated doses of the same agents after the first phase of the disease has passed, and so on. It would appear that we should at least be able to reach a common understanding as to the proper treatment of the diseases of the stomach and intestines of the horse. Let me cite an example of a system of treatment advised by a leading authority on the diseases of the horse for this affection: Laxative diet, enemas, oil per os pilocarpin or eserin, and to relieve pain, morphin in two to four-grain doses. Here we have a strange admixture of medicinal agents, some of which are in direct antagonism to others. How can we hope to be successful in treating this disease, while using such unscientific methods. At least we should aim to be consistent in the giving drugs and give drugs whose actions we know are not physiologically antagonistic to each other. Many years' experience has taught me that opiates of all kinds are contraindicated in the treatment of all forms of obstructive affections of the intestines of the horse; they are positively injurious. They inhibit peristalsis, increase stasis in an already overloaded and paralyzed intestine, they inhibit the intestinal secretions, increase an already existing cerebral excitement, that often ends in death.

The main object in the treatment of intestinal obstruction, should be to eliminate the offending material as soon as possible, and to do this with as little damage to the organism as possible. The early use of stimulants, laxatives, the use of water in large quantities, both orally and per rectum, with the object of softening the impacted mass as much as possible. Then follow up with serin, pilocarpin, arecolin, strychnin, and oil as indicated. Before using alkaloidal cathartics, we should first prepare the system to receive them. They should not be given in the early stages of any case of impaction. As to pain, I consider it only one symptom of a complex disease, and a mistake to treat only as such. To recapitulate, in the early stages of the disease, we may give aconit, nux vomica, carbonate ammonia, chloral hydrate in combination with turpentine and oil. Do not give eserin or arecolin in the early stages, wait and prepare the patient for their reception. How is this to be done? By the use of the above mentioned drugs and water. Just plain water. I have always found water used in abundance both per os and per rectum, one of the most valuable agents in the treatment of fecal stasis.

Intestinal Lavage and Massage

As a rule, no case of colic should be placed under any form of treatment without first submitting the animal to a careful physical examination, and by no means the least part of such an examination, is manual examination per rectum. Such an examination may, and often does, give much valuable information. As the rectum is overloaded with feces, its mucous membrane of a dry feverish nature, constricted or spasmodic contraction of the bowel, an examination of the inguinal regions may reveal hernia, and when the colon is the seat of impaction or displacement, these abnormal conditions may often be detected readily. For over thirty years I have practiced lavage and massage in treating impaction of the intestines with very good results; in fact I prefer this method to any other form of enemata. Cold water is always used in warm weather and warm water in cold weather, though I prefer cold water in all seasons of the year. In severe cases, and when it can be obtained, ice is used to cool the water. An ordinary stomach tube and pump are used. The tube, hand and arm being well oiled, the tube is carried by the hand as far as possible into the rectum, while at command, an assistant slowly works the pump. The arm and tube should be carried forward slowly at first, because the rectum will be found hot and dry as a rule, and the ani-

mal will offer considerable resistance by straining. Do not try to force matters. Take your time, and turn a stream of cold water into the canal, only a small amount need be used now, say a gallon or two. The straining and resistance of the patient will gradually cease and you will be able to slowly advance your arm and tube, keeping up meanwhile, a free flow of water from the pump. You will find that but little of the first pailful of water will be retained, but the second, and even the third will give good results. The arm should be retained in the rectum during the whole process, gradually advancing the tube forward with the hand outside the rectum, while the one on the inside with the fingers closed, gently applies massage to the bowel and at the same time, dilating gradually, any contractions spasmodic or otherwise that may be met with. With patience, it is often surprising the length of tube that can be passed into the intestine without kinking or turning upon itself, and also the large amount of flatus and fecal detritus that will pass out. An ounce of disinfectant is always added to each pail of water. The operation may be repeated in from two to four hours if required, or even sooner in urgent cases. At the second operation a change for the better will be noted; the parts will be found to be cool and moist, the spasmodic contraction of the bowel markedly lessened, and even the congested condition of the mucous membrane of the nose, mouth, and eyes, will have taken on a more natural hue.

At the second treatment, the passage of the arm and tube is accomplished much easier than at the first attempt, and by the same slow, steady, forward movement of the arm and tube, coupled with massage, it is possible to advance the tube six to seven feet forward and downward into the intestine so that the sound of the water running into the colon may be distinctly heard by placing the ear over the animal's flank. Persistence and patience with this method, is what gives results. I admit that it is a sloppy operation, but the end justifies the means. I have seen many cases of impaction of the colon that were considered hopeless, relieved by this method. Impaction of both the single and double colon and even the cecum, can often be readily diagnosed by this method.

As stated above, the physiological functions of the cecum appear to be that of a water reservoir, as in a state of health this organ is always found filled with a watery fluid mixed with ingesta, of a consistency likened by some authors to pea soup. When impaction of the cecum occurs, its contents are dry and firmly impacted. The cause of impaction of the cecum is no doubt due to an insufficiency of water in the animal's diet, too small a quantity of water, or water at too long intervals, is in my opinion the principal cause of impaction of the cecum and ileum. In the treatment of animals suffering from this form of impaction, it has been suggested to administer to the animal large amounts of common salt, in order to produce an intense thirst whereby large amounts of water would be drunk. The method is of practically no value. A better method is to pass the stomach tube, wash out the contents of the stomach, and then pump in about five gallons of warm saline solution at regular intervals.

In my opinion one of the most reliable symptoms of impaction of the cecum that we have, aside from positive manual examination, is, that after the administration of an active purgative that has brought away large amounts of feces, no improvement is obtained from this cleaning out in fact we may even have severe diarrhea coupled with firm impaction of the cecum. In no other form of impaction can such a condition exist.

Some cases of impaction of the colon are accompanied by considerable bloating, often to such an extent as to require the use of the trocar. With the trocar in situ, do not let all the gas escape, but slip a rubber tube over the end of the instrument, attach to your pump and pump in two or three gallons of water, containing an ounce of disinfectant. This gives good results when everything else fails. By using a long trocar it is possible to perform this operation when there is no bloating present to distend the gut.

DISCUSSION

DR. J. T. NATTRESS: This paper should be discussed by the country practitioners. There is some of it I don't approve of. His treatment is very good and I think probably can be followed out by the younger members of the association, but for us older men, life is too darn short to work so hard.

DR. E. L. QUITMAN: Dr. Martin has covered the ground very thoroughly in this excellent paper and at the same time in a rather brief manner, and while I agree in the main with his treatment, there is one particular part of the treatment in which I most emphatically disagree. I can hardly believe that any modern veterinarian or any graduate veterinarian, which is the same thing, uses opiates in treating colics. The essayist skipped over the feature of allaying pain. It is a well known fact that in the majority of cases of intestinal impaction there is no acute pain, the pain usually being of a subacute or dull type. However, in some cases there is acute pain and in other cases we have the owner to deal with, who will ring you up a few times during the night and insist upon the horse being relieved. Lobelin sulphate will relieve the pain nicely, without retarding the action of laxatives or purgatives, indeed is synergistic. This is just one point I wish to make, and that other one is to criticise the use of aconite, in these cases. I think we will find if we observe this point, more good will result in the treatment of impaction if we do not use aconite. Aconite in colics frequently induces a complete paralysis of the stomach and leads to intestinal stasis, even though I cannot account for it except in one way. Stomachs that I knew were perfectly empty, I have seen those animals where they had been given, perhaps by the owner, a good dose of aconite, continue to suffer from persistent flatulence. The only way I can account for it is that an excess of mucus forms in the paralyzed stomach and perhaps decomposes or ferments, or perhaps some would account for it by a reversion of peristalsis and the gas in the intestine is forced forward into the stomach. I can see no value in aconite in these cases. The only reason I think Dr. Martin used it was an an anodyne and it might have been better if he had used lobelin sulphate.

You have in lobelin sulphate a very good anodyne, antispasmodic and sedative, and one that will not in any way interfere with the treatment of the impaction. It does not counteract in any way the action of intestinal stimulants, purgatives or laxatives, but being a secretory stimulant it aids their action. Aconite, on the contrary, will induce bloating. There is no doubt about it in my mind.

I was glad to hear him call attention in cecal impaction to the fact that an animal reacted to purgatives promptly. Positive diagnosis would be made by palpation. Any laxative or purgative reacts on the bowels very nicely though the impaction of the cecum persists. A dose of linseed oil, and the next morning he is apparently well and you think he is all right. They brace up and then the animal seems well, but the cecum remains impacted and serious symptoms arise. You repeat the same treatment perhaps, and it may go on for a considerable length of time. The whole cecal impaction may last as long as three weeks, and usually terminates fatally.

There is another type of impaction that Dr. Martin did not touch upon, that is not commonly diagnosed, and if I relate the symptoms to you, many of you will recognize it. A horse shows a subacute type of colic and by the beginning of the second day or at the end of twenty-four hours, he shows an intense auto-intoxication. There will be a very subacute type of pain. He is dull and restless and he is passing soft feces right along, in small quantities—not watery and yet of a soft character, a little softer than the feces in normal condition. This is a condition that many practitioners have in their horse practice. It is duodenal impaction. Impaction of the duodenum exists and yet the posterior portion of the intestines will continue to function; feces are passed and, as a result of treatment or perhaps the result of irritation, of a softer than normal character. This type is not fatal though it is very troublesome. The animal may suffer from it a week or ten days and, what is also typical of that type of impaction is that as a rule, it is accompanied by far more auto-intoxication than in any other impaction. The treatment for this type, the one and very best line of treatment, is that suggested by Dr. Martin, the introduction into the stomach of large quantities of salt solution and, of course, administration of liquid petrolatum is of the utmost value, also repeated small doses of eserin sulphate, pilocarpin and strychnin. Rectal injections in this condition are of little value, except to counteract to some extent the auto-intoxication, which may require a convalescent period of two or three weeks.

Impaction of the duodenum is nowhere near as common as the other impactions.

I think we all recognize that impaction of the colon probably constitutes 75 per cent of such cases. Differential diagnosis between impaction of the cecum and impaction of the duodeum, is comparatively easy on the second day. The first day we may not perhaps think of it. In the first place, in impaction of the cecum there is manual examination for diagnostic features. Next, in impaction of the cecum the patient does not show a diarrhea except as the result of a laxative. One of the first symptoms in duodenal impaction is the passage of soft feces, which come out soft at once, in sausage form and perhaps, I might say, as far as I could ascertain in pieces eight to ten inches long. Later on the patient becomes dull, that semi-dead condition concomitant with auto-intoxication and there is slight evidence of pain. In other words, the primary soft condition of the feces is a valuable diagnostic feature and in impaction of the cecum it is the result of purgatives. In impaction of the cecum the early symptoms are usually of a more pronounced character. By the end of the second day in impaction of the duodenum there is more pronounced auto-intoxication. Why not? Consider the more active circulation in the duodenum, and more active circulation means a greater blood supply in the smaller, than in the larger intestine. This interference with circulation, reacts on the liver, checks the biliary secretion, and allows of absorption of poisonous material from the intestines.

DR. MARTIN: In reference to the use of aconite, I wish to say I use it as an anodyne only and the aconite is never administered in doses large enough to produce colic as when the barn man administers it. I administer it myself, and I want to say that I have used aconite in the early stages of the cases and with most beneficial results, in small doses. I seldom repeat the dose more than twice, merely use it in order to prepare the animal for the other treatment. It does not produce the condition in my experience that Dr. Quitman has mentioned unless it is given in overdoses. One will occasionally be called to cases which have been given aconite, and the animal will be found frothing at the mouth. In such case one gets the full physiological toxic effect of aconite and it is very harmful.

Veterinary Fees and Their Collection

By D. M. CAMPBELL, D.V.S., Chicago

THE law implies an obligation to pay the reasonable value of medical services."—*Essentials of Veterinary Law.*

Render honest, efficient service, the best that you are capable of, and then charge and collect a reasonable fee.—Dr. J. J. Taylor.

A veterinarian's patrons must support him or the time will quickly come when he can no longer render them service. A veterinarian is entitled at least to compensation sufficient to enable him to keep up-to-date on professional matters, to rear a family according to American standards, and to save from his income sufficient to meet his needs when his capacity for producing has diminished, or to care for those dependent upon him in case of death or incapacity for practice. A veterinarian who, because of other sources of income, or because of low living expenses, or for other reasons, charges less for his services, is unfair to his competitors and professionally unethical.

Good Judgment Necessary

"A sound conception of the value of his services in his capacity as a practitioner has considerable effect on the young veterinarian's future. In many cases that are brought to him for professional attention, he is at a loss to place an appropriate valuation upon his services, especially when certain conditions from a commercial standpoint are to be considered. In some instances his fee is exorbitant, while in others it is wholly inadequate.

"In a competitive practice, judicious levying of fees for the service rendered is often quite as important as the professional knowledge applied in earning the fee. It is by no means an unusual occurrence for a young veterinarian to impede his own progress in competition with an

older and more experienced practitioner by an exhibition of poor judgment in the fees which he charges for his services."—M. R. Steffen.

A Schedule of Prices

No hard and fast rule can be made as to what fees ought to be charged. No agreement among veterinarians as to fees they will charge is lawful. The size of the fee should depend upon many things—the quality of the service rendered, the value of the animal or animals treated, the ability of the client to pay, the custom in the locality, and other matters, all must be taken into consideration in making the charge.

Obviously the fees should never be so low that the veterinarian does not make something more than a living from his practice, and it is equally obvious that they should not be "all that the traffic will bear," unless the traffic will not bear more than a minimum just amount. A veterinarian's service must in the long run be profitable to his clients, or obviously his clients will cease to employ him and his practice will become unprofitable to him.

Collections

Having rendered good service and charged a reasonable fee, a veterinarian owes it to himself, to his family, to his brother veterinarians, to his other clients and to the debtor himself, to collect for his services and to collect as promptly as the circumstances justify. It is unprofessional, unfair, unbusinesslike and bad citizenship to do otherwise.

A veterinarian had far better do less and collect a larger percentage of his fees than to do a large practice and neglect collections. For example, a $5,000 practice, only 60 per cent of which is collected at once, becomes a $3,000 practice, but it must bear all the expense of a $5,000 practice, for drugs, instruments, wages, automobile repairs and depreciation, rent, postage, physical wear and exposure, etc., etc. As a result the veterinarian and his family must suffer, his own creditors must wait for what is due them, his confreres are placed at an unfair disadvantage and reprehensible habits of dishonesty are encouraged in his patrons. Far better it were if he devoted only half of his time to practice, doing a $2,500 practice and devoted the remainder of his time to collecting for what he has done.

But it need not take one-half, nor one-fourth nor even one-eighth of a veterinarian's time to collect for his services. Any veterinarian can collect 95 per cent of his fees with comparatively little effort if his methods are correct and his effort well directed, the fees, of course, being reasonable and the service rendered good.

In addition to the foregoing reasons for prompt collections, there are additional business reasons. The man who owes a veterinarian for services long overdue is frequently a "knocker." It "salves" his conscience somewhat to pretend, and to tell, that the services rendered were poor. When he has cash, he is far more likely to employ a competitor than is the man who has paid for his veterinary services promptly. Further gratitude for the effort made rapidly diminishes if the bill is not paid, making collections, particularly in cases that turn out badly, harder and harder. Soon the debtor remembers only that the animal died and that the bill represents just so much additional loss and easily justifies himself in delaying payment, and in "knocking" to his neighbors. *Prompt collections are the only easy collections.*

A first essential in prompt collecting is good accounting. Be able to give any debtor detailed information regarding his account at a moment's notice. Countless fees have been lost because the veterinarian did not have a statement of the account ready to meet the client's willingness to pay. The veterinarian should have a complete record of all unpaid accounts always with him. This, of course, necessitates a one-book system. With it he can, at any time, at any place and on any occasion inform a debtor of the amount of his indebtedness when the subject is broached; and can furnish detailed information concerning each charge.

A professional man, even more than a merchant or other business man, must employ the utmost tact in collecting his accounts. Collect when the service is rendered if possible. Never suggest a reason (such as waiting to see how the case comes out or to learn if other calls or after-care is necessary), for putting off the payment if the client asks you the amount of the bill when rendering a service. If he does not make this inquiry, it is often a tactful thing to get out the account book and in his presence write down the charge, ask-

ing him his initials or something of that sort to call his attention particularly to it. If this is done more often than not the client will ask the amount of the charge. Always tell him unequivocally and unhesitatingly and then ask in a matter of fact way if he wants a receipt or mention that you "will make out the receipt in just a minute." The hint will be taken more often than one would think. If producing the account book and entering the charge does not produce the desired effect, ask him if he wants to pay now or the first of the month. He will probably select the latter. Then remark that you will make a notation of the date and count upon it then.

Timeliness Important Factor

Timeliness is a factor of importance in presenting requests for payments. Learn when debtors are going to receive money and be on hand to give them a chance to pay. Particularly is this necessary with the improvident, from whom payment should be insisted upon at such times, for the reason among others that otherwise money due for veterinary service is quite apt to be expended unwisely.

With this latter class, and in fact with any class, one should encourage small payments; $5.00 a month or a dollar a week or even less will keep up the debtor's interest in the account and soon liquidate it.

The use of notes and procuring of checks dated ahead are valuable aids in collecting money. When an account is much overdue and the debtor promises to pay it sometime in the future, one should at once present one or more notes dated to mature, perhaps one month if the bill is large, or, at the time he says that he will have the money. He will find it hard to refuse to sign the note giving him all the time that he says he needs if he really intends to pay the bill, and he will be far more likely to meet the bank's demand for the money when the note is due than to make good his verbal promise to pay the account at that time. Should he decline to sign the notes or to pay them if he does sign them, he should be told frankly that you cannot afford to spend time, use high priced drugs and burn gasoline treating his animals if he won't pay his bills. This covert threat to refuse him services is a powerful lever in separating the poor-pay client from his money; the confirmed deadbeat hates to be refused veterinary services for his animals worse than he hates to be refused groceries for his family. Should this fail to convince Mr. Slow Pay, a veterinarian is fully justified in refusing to serve him further except for cash in advance. But such refusal of services should be made only after due notice as explained in "Essentials of Veterinary Law," so that the veterinarian may not render himself liable for loss of animals that his refusal may entail.

Monthly statements should be sent to every debtor. It matters not what the custom of business men, or of other professional men in the community may be, or what the doctor's previous custom has been, monthly statements are a business necessity and should be sent on all unpaid accounts. It will not offend debtors, opinions to the contrary notwithstanding; this is not a theory—it is a positive fact.

When statements are not paid, the consideration of "collections" readily begins. Sending out monthly statements is simply a necessary part of the bookkeeping, just as is making charges on the books and crediting payments.

The basic elements of any successful collecting system are persistency and courtesy. Bluffs and threats have no part in it. It is the constant effort, the frequently repeated request that produces the money. If measures for collection are as courteous as they are constant the good will of the debtor will be retained and his respect will be won. A collecting agency for veterinary accounts is not to be thought of. They fail to get as much money as could be collected by the veterinarian himself and they alienate all debtors. If one must sue for one's bill, sue in the justice court. Do not employ a lawyer unless the case is appealed.

It is the custom to send monthly statements on the first of the month. If one adopts this time for sending out statements one should see to it that the statements are out on that date; do not make it the second or third. In a city practice, bills that are not paid by the 15th of the month should receive a second statement, to which is attached one of the "stickers" that may be purchased in series from stationery stores. A sample of a good series, that

costs only $1.00 per thousand stickers is as follows:

No. 1, for the 15th of the month following the month in which the services were rendered, i. e., for the second statement. "Undoubtedly this account has been overlooked. An early reply will be much appreciated."

No. 2, to be sent ten days after No. 1, attached to the third statement: "Accounts are due on receipt of statement for services rendered. Prompt payment is desired on business principles."

No. 3, to be sent ten days after No. 2: "How the time does fly! I know just how these little oversights occur. Don't bother to explain. Simply send payment by return mail. Thank you!"

No. 4, to be sent seven days after No. 3: "Numerous communications have been sent you relative to this account It is long overdue. Kindly oblige by giving the matter your immediate attention!"

No. 5, to be sent five days after No. 4: "No reply has been made to the several statments already sent you. Please do not, through further neglect, force the use of severe, harsh and aggressive measures to collect this bill."

If any of these stickers produce a reply or a partial payment, of course, the account is taken out of the list that is being pressed and handled as the circumstances may demand. The stickers are simple, inexpensive, impersonal, inoffensive, and they *do* produce the desired results, especially the first three. Ordinarily we believe it inadvisable to use No. 5 for professional accounts. When No. 3 or perhaps No. 4 has not brought a settlement or at least a reply, the account can profitably be handled by a system of weekly letters gotten up for the purpose.

In a country practice with a farmer clientele, it is ordinarily considered best to make haste less rapidly. To this class of patrons the second statement should be sent the first of the second month and the first sticker used on it. The third statement may be held even until the first of the following month, and receive the second sticker, but after this requests for remittance should come at shorter intervals, every ten or fifteen days with appropriate stickers.

Stickers produce results equally as good or better than do the same messages written on the statement and are much less likely to give offense to the recipient. Stickers printed in red with a "reverse zinc" are best. They should be printed on good gummed paper.

Dr. C. A. Bryce, editor of the *Southern Clinic,* recommends the following paragraphs for use on statements:

"1. When you send for a doctor it is because you need him and expect him to come. When he sends you his bill it is because he needs your assistance and expects it.

"2. If you send for a doctor twice in succession you would be in great need of him and would think very badly of him if he neglected you under such conditions. This is your second bill.

"3. When a drowning man goes down for the third time his friends have lost their chances to save him. This is our third appeal to you to treat us fairly. Don't drown a good friend."

When these requests are ignored send a letter to every delinquent. The first letter will often be the means of effecting a settlement on an account considered no good. Follow them up rapidly with more and more urgent letters until the account is paid.

Paragraphs 1, 2 and 3, above, should be printed on the statements in ordinary type. Dr. Bryce of Richmond, Virginia, supplies 500 statements with these paragraphs printed on them for $1.00.

Follow-Up Measures

We give collections by mail even for a veterinarian's services first place because of its convenience and its low expense. There are two other plans of following up delinquent patrons that are in many instances somewhat more effective, but they are also more expensive, particularly in time.

The first and most effective is a personal call. A veterinarian whose practice does not demand all of his time may spend, advantageously, a good many hours per week calling upon patrons who are behind in their accounts. For a veterinarian of forceful, and, at the same time, engaging, personality, this is a splendid means of getting money on slow accounts and often the means of procuring additional practice.

Unlike the follow-up by mail, where the money is asked because it is due, in a personal follow-up the strongest argument is that of necessity. Those who do their collecting this way depend largely upon pleading their own needs for the money to pay drug and instrument bills, to phone and grocery bills, gasoline bills, etc. However, in personal collection the "hard luck" story should be avoided as much as is consistent with successful collection.

A follow-up by telephone is a method much used by many successful veterinarians, but it must be undertaken skillfully or not at all. A client will invariably put up a bolder front and offer more excuses for the non-payment of bills over the telephone than he will to the doctor personally or in a letter, and he is far more prone to take offense at such dunning because of the alleged probability of others "listening in" on party lines or for other reasons.

The telephone has an important function in good collections, but in my opinion its use is not in transmitting duns. It is a convenience in keeping the debtor reminded of the veterinarian's interest in him and his animals and of keeping him from forgetting his obligations. Nothing holds clients so firmly, pleases them so fully, and brings payments so willingly as telephone calls of inquiry from the veterinarian following every service rendered. Many of the most successful city veterinarians mark on their calendars after every call days on which they or their office attendants will call up the client and ask about the outcome of the case. Country practitioners, I believe, as a whole greatly neglect this important means of building and holding a practice.

As an illustration of how this is worked, take the following: Suppose that March 25, Dr. Doe castrates two colts for Bill Smith, treats a lame horse for Tom Jones, delivers a calf for John Brown, and treats a case of colic for Henry Green. He should use a block calendar and under the date of March 26 and 28 he should make a note to call up Green and ask him about his horse, how he is doing and how he is eating. March 27, he should call Bill Smith and ask about the colts, if there is any swelling, if they are feeding well, and to let him know if everything does not look right. March 26 he should be sure to call up John Brown and ask him if the cow is all right, if he is sure the afterbirth came away properly, if the calf is showing any symptoms of diarrhea, what early symptoms of mastitis to watch for, etc., etc. March 26 and again about a week thereafter, he should call up Tom Jones and ask about the lame horse, cautioning against overworking the animal or working him too soon. Aside from its great practice-getting and practice-holding value, such a procedure is well worth while for the untavorable sequellae it prevents and the service it renders.

Where a practice is large, it may be necessary to have the office assistant take care of this matter, always prefacing the remarks by saying, "The doctor wants to know such and such," and "to be sure to remind you," etc. But it is surprising how little time it takes to follow up cases on the telephone and how well it pays in prestige, good will and in dollars and cents. As mentioned above, nothing else holds patrons so firmly or brings payments so willingly.

VETERINARY EDUCATION SUFFERED FROM WAR

Attendance diminished materially last year in the 21 veterinary colleges in the United States which are accredited by the Bureau of Animal Industry of the United States Department of Agriculture. The dean of one college reports that owing to war enlistments, he lost 50 percent of his faculty and 66 percent of his students. The number of freshmen enrolled in all veterinary colleges of the country for the 1917-1918 session was 338 against 637 for the preceding year, a decline of about one-half. The total attendance at all veterinary colleges showed a falling off of more than 800 students. A further reduction is indicated for the session of 1918-1919.

As interpreted by the Bureau of Animal Industry, the effects of the reduced attendance in veterinary institutions will be felt more in the future than now, for the coming graduating classes will be unusually small.

There is need to encourage persons of proper fitness to engage in veterinary studies so there may be an adequate number of trained men to respond to emergency calls and for prompt control of epizootics.

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The County Agent Problem

THE project of placing an agricultural adviser in every agricultural county in the United States, while not carried out in its entirety, has been of immense benefit to the agricultural interests of the country, and that, of course, includes the live stock industry of the country. Yet veterinarians whose livelihood depends upon a thriving and profitable live stock industry, in not a few places have opposed, and in some places are opposing still, the activities of the "county agents," to the no small embarrassment of the latter.

Obviously, there is something or some one wrong in a county where the county agent and the veterinarians are antagonistic to one another, when the same end, a greater and more profitable live stock industry, is the aim of the one and the mission of the other. The closest kind of co-operation must prevail between these two agencies serving the live stock industry of the district if either is to accomplish one-half its possibilities for the improvement of the live stock industry.

Sometimes the veterinarian has been in the wrong where strife has arisen between him and the county agent, but more often the latter has been at fault, and for this the explanation is simple. In most localities, the work of the county agent is new as compared with veterinary practice; its limitations are not well understood by the farmers and there are few precedents to guide the county agent. At the start it requires time for even the able county agent to "find himself." The veterinarian, already established in the community, is in a position to give him much valuable information concerning live stock production, losses and needs. He is also in a position to mold in some degree the opinions of the live stock owners as to the duties of the county agent in matters pertaining to live stock. So far as we are informed where veterinarians have tactfully and sincerely offered the county agent co-operation of this kind immediately upon his arrival in a community, their relations have continued harmonious, the veterinarian has profited in practice and the live stock industry has greatly benefited. On the contrary, where the veterinarian has stood suspiciously aloof from the county agent and watched, sometimes with at least a small chip on his shoulder, for some invasion of his prerogatives, he has not infrequently found his domain invaded sooner or later, and a quarrel is soon being argued in the local papers to the benefit of no one and to the detriment of all three parties concerned.

The stand taken by the United States Department of Agriculture, that county agents shall not engage in veterinary practice, is well understood, the wishes of the state heads of the county agents in most states are that the county agent shall not engage in veterinary practice where competent veterinary service is available, but neither the United States Department of Agriculture nor the state supervisor of county agents can entirely

control the activities of these agents in new territory. The county agent is under the immediate direction of the local county agent bureau, or county agricultural association, or some such organization by whom he is paid in part, and sometimes such associations refuse the services of a county agent unless he will perform certain duties, such as the vaccination of hogs for the prevention of cholera, and the state and national authorities must give in for a time to local sentiment in the matter. Such abuses right themselves in time if handled diplomatically. It is noteworthy that in Illinois where the county agent system has been established longer than elsewhere, and where his duties are well understood by both himself and the farmers, not only is there no friction between the county agent and the veterinarian but there is almost universal co-operation of the heartiest kind between them; each is glad of, and profits by the existence of the other.

Veterinarians must not make the mistake of censuring the county agent system because of the mistakes of individuals. No class or profession is free from "black sheep." In any considerable group, some individuals therein will be found lacking in common sense and in discretion; of such, County Agent Edgerton, of Davenport, Iowa, is a conspicuous example because of his tendency to break into print on every possible occasion. Time will eliminate such misfits as Edgerton, and in the interval, we can only wish that he be fitted with an effective muzzle. The following from a report just issued by Edgerton is a sample of his weekly effusions:

"Flu" Epidemic Among Hogs.

With the "flu" in some instances attacking the same herd of hogs as many as three times in succession, we find ourselves wondering if this thing can continue indefinitely. Furthermore, we would be interested to know if any of the veterinarians in the country are ready to say and prove it by producing evidence that vaccinating for this epidemic has been productive of any lasting benefit. As far as our observation goes, the man who didn't vaccinate is ahead of the man that did, just the price of the vaccination. We know of instances where the vaccinated herds commenced to clear up almost immediately and then we know of others that had as many as three injections with seemingly no benefit.

The county agent system in Nebraska has all the faults of the plans in all the other states combined and none of their virtues. The trouble apparently is with the state head of the county agents at the University. The county agents in Nebraska have been under the most narrow-minded and prejudiced control. It is unfortunate for the live stock industry of the state and for Nebraska practitioners. We believe the veterinarians in that state have erred in their methods of opposing county agents. A more conciliatory attitude will get them farther than their present uncompromising position.

The county agents are with us and with us to stay. On the whole they will make good. They have done surprisingly well. Their work brings them in close touch with the work of veterinarians in their various localities. Keep in mind that most of them co-operate fully with the veterinary practitioners and are boosters for good veterinary service. If your relations with the county agent in your locality are not satisfactory, it is the part of wisdom to strive for a better understanding rather than to strive to get rid of him.

As an indication of the diversity of opinion on this subject, note the following and then read again the foregoing. Dr. McDarel and I think alike about county agents that attempt to do veterinary practice—they are near calamities for their communities.

I read in the December, 1918, number of the AMERICAN JOURNAL OF VETERINARY MEDICINE, page 600, in "Army Veterinary Corps Miscellany," the following:

"For those veterinarians returning to general practice, better places than they left await them but, for the latter, conditions will have changed, due to the extensive educational campaign of the federal and state governments—the *quadrupling of a number of county agents and agricultural extension workers*—live-stock owners are more exacting in the matter of veterinary service and on the whole better veterinary service must be rendered."

I rise to ask wherein the county agent influences the quality of veterinary service for the better. The writer of the article surely cannot be one of the county agent clan—it reads so much like their boasting and their persistent and harmful meddling in veterinary matters.

Can it be that Dr. Campbell wrote the article and that he begins to share the delusion of many high-placed veterinarians that the county agent is such a factor as all that in the live stock world?

If the next ten years find all county agents graduate licensed veterinarians and there be five

to ten in each big live-stock-producing county, it will not yet be the millennium for the live-stock grower.

The County Agent, State Agricultural College and Extension Division of the United States Department of Agriculture is a powerful combination which receives the kow-tows of many an upstanding veterinarian but directed against the veterinary profession in the field. I believe it has cost the communities, where applied, more per year in live stock losses than the annual cost in salaries for the entire outfit in the United States.

If the writer of this is a veterinarian, he must be one who has drifted entirely away from the active practice of his profession or association and sympathy with those so engaged not to realize that they are the ones who are responsible for the great saving to the live-stock industry and their tax on the industry has been ridiculously small in these days of high prices and slender dollars.

The veterinary activities of this combination in the field have only hindered veterinary food conservation, just as empirics usually do and nothing in their efforts to cozen the live-stock grower with free and eminently superior veterinary service has had the effect of improving the service of veterinary practitioners or leading the live-stock grower to expect better.

A county agent first of all must be a publicity expert and he and his fellows at the state agricultural colleges and at Washington are conducting a very sinister and thorough campaign of publicity which needs no voluntary advertising contributions in the AMERICAN JOURNAL OF VETERINARY MEDICINE.

In an early issue, it is hoped that you will take note of the incongruity of the statement objected to. RAYDE F. S. MCDAVEL.

Cedar Rapids, Ia.

More than 2,300 of the 2,936 agricultural counties in the United States, had county agricultural agents last year, and a still larger number has been employed for the current year. These county agents held 135,000 meetings, attended by more than 7,000,000 farmers. They made 1,200,000 personal visits to farms during the year and responded to 1,250,000 office calls by farmers for advice.

Veterinarians who have been so unfortunate as to have county agents of the wrong kind sent to their communities, will do far better by endeavoring to have the misfit replaced by a county agent of the proper sort, than they will to rail against the whole county agent system, which on the whole has proved itself worthy, is permanently established, and bids fair to be considerably extended.

JAMES DORSEY GOES TO THE PENITENTIARY

The final hearing on James Dorsey's appeal from the sentence imposed upon him by Judge K. M. Landis more than a year ago has been heard and denied, and he has commenced to serve his sentence of eight years in the federal prison at Fort Leavenworth, Kansas. The sentence also carried with it a fine of $3,000.00.

James Dorsey, as perhaps every reader knows, was for many years probably the leading dealer in dairy cows in the United States. His specialty appeared to be the purchasing of animals that had reacted to the tuberculin test or that the dairyman had reason to believe were tuberculous and wished to dispose of before the test was applied to his herd, and selling them under health certificates including a tuberculin test chart.

So extensive were his dealings and so notorious was his reputation for "slipping over" approximately 50 per cent tuberculous animals in all his shipments that the governor of Wyoming and later of other middle western states, issued a proclamation forbidding the importation of cattle from Dorsey and later from the whole state of Illinois.

For a number of years the Dorsey tuberculin test charts were signed by Dr. A. Tyler of Elgin, Illinois, but as this signature became too widely known, other signatures of other veterinarians, sometimes fraudulent and sometimes genuine, were used. The Illinois State Veterinary Medical Association and the State Live Stock Commission of Illinois made a thorough investigation of the matter, and as a result of their findings, Dr. Tyler was expelled from the Illinois association and his license to practice in this state revoked. Two or three other veterinarians were implicated, but it was shown that they had made honest tests and that diseased animals of a similar description had been shipped on their certificates. A resolution was then passed by the Illinois State Veterinary Medical Association prohibiting any member from administering the tuberculin test for Dorsey on penalty of expulsion from the association. Dr. O. E. Dyson was appointed State Veterinarian about this time; he carried the matter farther, and in co-operation with the United States Department of Agriculture, established a

quarantine that effectively put a stop to the traffic of tuberculous cattle in the Elgin dairy district. It is said that at the zenith of his career, Dorsey bought and sold more than 20,000 cows a year. These cows went to every part of the United States and Mexico and since numberless shipments contained 25 per cent to 75 per cent tuberculous animals, it is perhaps a conservative estimate to say that Dorsey established at least 10,000 foci of tuberculosis among the dairy herds of this country. The loss to the cattle industry through his dealings has been incalculable. He was commonly referred to as the "millionaire cow king." Though his dealing was profitable and he amassed a considerable fortune, it probably never reached anything like the value of a million dollars, and what he did accumulate it is said was largely dissipated by the cost of his trial which extended over a long period and was fought at every turn by the best legal talent obtainable.

There are but two matters of regret in connection with his conviction and sentence. First, that through good behavior he may be released in a little more than five years and again, perhaps under a new name and in a different locality, take up his nefarious work and profiting by his past experience, escape punishment until vast harm has been done. The second regret is that he was not convicted for trafficing in diseased animals and thus violating the law against the interstate shipment of such animals and his punishment brought about by the U. S. Department of Agriculture, whose regulations he openly flouted for years, or by the live stock sanitary authorities of the various states throughout which he spread tuberculosis. He was convicted of using the mails to defraud. The case against him was worked up and the prosecution engineered by the postoffice department. Had he continued as he began and conducted his dealings by personal barter, he might still be trafficing in tuberculous cows. His desire for expansion led to advertising and the use of letters soliciting customers and guaranteeing the health of the animals he dealt in. This use of the mails was his undoing.

Let it be said to his credit, it was the general practitioners in a number of states to which Dorsey sent diseased cows that first "got on to him" and not the live stock sanitary authorities nor the United States Department of Agriculure, whose attention was called to this over and over by practitioners before they would believe that animals shipped with tuberculin test charts that looked O. K. were other than healthy.

DISAPPROVES THE B. A. I. TUBERCULOSIS ERADICATION PROJECT.

I have read with interest your appeal to practitioners in the February number to help B. A. I. employees get a raise in salary. Your article "Protecting a Ten-Billion-Dollar Industry", designed to furnish practitioners "with arguments to be used upon their representatives in congress and men of political influence in their communities", has been read with considerable interest. Your summary of the achievements of the Bureau of Animal Industry is quite complete. There is one phase of their work that you have elaborated upon and extolled highly, however, that, in my opinion, you can hardly expect a practitioner to boost as an achievement of the Bureau: I refer to the accredited herd as a means of control of bovine tuberculosis.

You state "for years small progress has been made toward getting it under control, but during the past year the accredited herd system has been applied nationally". I would infer from this statement that the accredited herd system is a panacea for tuberculosis control and that the work of the local practicing veterinarian has been negligible compared to the work of the B. A. I. Under the bureau plan tuberculin testing is done gratis, thus taking a part of the practitioner's legitimate work away from him. It has not been shown that the practitioner is not competent to do this work; that his efforts along this line have been ineffectual; that he is habitually or regularly dishonest; that American cattle owners are in need of government paternalism. I dare say that a very large percentage of the "more than 1,400 herds that have passed the first test" have been repeatedly tested by a local practitioner as well as the "3,320 grade herds and 867 pure bred herds under supervision being prepared for the test". You state that this number of herds is "a fair indication that the system finally devised is making a strong appeal to cattle owners".

No doubt it is—it is free. Everyone wants to get something for nothing, and I can say

that the free part of the arrangement is the biggest drawing card to the whole scheme. It has not been shown that the veterinary fee for testing has been a hindrance to tuberculosis control nor that the American cattle owner is a fit subject for charity. Why is the local practitioner prohibited from doing this work? The B. A. I. men seem to be afraid to trust a practitioner, so why should they look for any in return? Do you not think the B. A. I. veterinarians could expect more support from the practitioner if they would give him a "square deal" in this matter?

I do not want you to understand that I am opposed to the salary increase for B. A. I. employes nor that I wish to disparrage the achievements of the B. A. I. The B. A. I. has accomplished great things, and I wish to accord it all credit due. The federal veterinarians probably need more money but, just a little digression, don't you think the old friend, a practitioner, who "says he is making as much in a month as he could make in a year if he were working for the government" was just "shooting the bull" a little? I hope the Bureau veterinarians get an increase in salary and I am willing to help them all I can. I am simply criticising the B. A. I. method of discriminating against the practitioner by limiting tuberculin testing to bureau employes for admission of herds to the accredited list. Both practitioner and federal employee has a place to fill but do you not think the federal bureau should leave the practitioner to his legitimate field?

There is quite a noticeable contrast between the attitude of sanitary officials attending to the health of mankind (the M. D.'s) and our veterinary sanitary officials. The slogan of the medical health official is "Consult your family physician," while veterinary officials seem to lose sight of the fact that the practitioner can be of any value. I have noticed large placards on billboards of our large cities concerning our recent influenza outbreak, and the last advice in big, bold, red letters is, "Call a doctor." We do not see that attitude in veterinary sanitary work and this last step by the B. A. I. typifies the attitude.

Both practitioner and B. A. I. veterinarian has a place to fill in this work and the sooner the B. A. I. recognizes this fact the better for all concerned. The trouble with our B. A. I. methods is that they try to make uniform requirements to fit all cases without recognizing the fact that circumstances alter conditions; what will work in one section may not be the most feasable plan in another section of the country.

HERBERT LOTHE.

Waukesha, Wis.

COMMENT: First, let me correct your impression that the article "Protecting a Ten-Billion Dollar Industry", in the February issue of the Journal was written by the editor. It was not and assuredly if it had been it would not have contained the statements to which you refer. The article in question was prepared by a committee interested in promoting the passage of the B. A. I. classification bill for the increased salaries for veterinarians in federal employ as given in the article.

The present operations of the B. A. I. in the accredited tuberculosis free herd work is undeniably an infringement on the field, the rights, privileges and perquisites of the general practitioner, but I do not look upon it with the apprehension that our correspondent does. The work that the Bureau is doing is necessary to popularize bovine tuberculosis control and eradication work. Just as it was necessary some years ago for the Bureau to follow almost identically the same plan with respect to hog cholera. That is, the anti-hog cholera serum was furnished free by the Bureau and the vaccination performed by veterinarians in federal employ. The result was confidence in anti-hog cholera serum and its proper use was established and a demand for it arose that far exceeded any possible limits to which the Bureau might go in free anti-hog cholera vaccination. When this stage was reached, except for demonstration purposes and educational work, the Bureau withdrew from the field of the private practitioner, which admittedly it had invaded, and where anti-hog cholera serum was of little moment to most practitioners even so late as five years ago, it is now a great factor in the practice of most veterinarians throughout something more than twenty states.

We look to see the present B. A. I. plan of bovine tuberculosis eradication work out pretty much in the same way, although not so rapidly. The tuberculosis free accredited herd is a necessary entering wedge in the work of tuberculosis eradication, and no

plan has yet been offered of placing the certification of such herds in the hands of local practitioners without detracting from its efficiency. Perhaps Dr. Lothe has a plan for doing this that has not been considered. If so, we shall be glad to publish it and can assure it careful consideration at the hands of the authorities. However, necessary as the accredited herd plan may be as an entering wedge in opening up the whole project of bovine tuberculosis eradication, its effect is merely to scratch the surface of the problem. Tuberculosis does not progress through a herd in the wildfire manner of hog cholera and we can not expect a demand for protection from it to make as rapid headway among livestock owners as the demand for hog cholera protection has made, but when the time is ripe for the eradication of tuberculosis from the herds of this country the B. A. I. and the state sanitary authorities will be as utterly powerless to handle it as they would be now to undertake to handle the hog cholera situation, and then must this matter be carried out as in the ultimate must all general measures for the prevention of diseases of live stock, by the general practitioner. The live stock industry of the United States is too immense for county agents or veterinarians in federal employ or other governmental agencies to ever have any exclusive part in protecting it from losses incidental to disease. Only in the ranks of the practitioner are there to be found those skilled in such work in sufficient numbers to make an appreciable impression on a task of such magnitude.

The work of the B. A. I. veterinarians is necessary to the welfare of the live stock industry and even more necessary to the welfare of the veterinary profession in general, which depends upon the live stock industry. The proper field for the B. A. I. or other government agencies lies in research and in investigation, in demonstration and other educational work; and in the carrying out of regulatory or sanitary police measures. The better pay of B. A. I. veterinarians the better they will do their work and the better class of veterinarians will be attracted to and held in the B. A. I. service, and the more they will do for the live stock industry and in the long run, for the whole veterinary profession. Hence, every veterinarian is directly interested in improved efficiency in the B. A. I. A prime essential to this is a salary scale somewhere near commensurate with the qualifications of a veterinary inspector, the responsibilities of his position and the importance of his work. Support the classification bill.

Army Veterinary Corps Miscellany

WITH the demobilization at the veterinary training schools at Camp Greenleaf and Camp Lee, more than 1,000 veterinarians were discharged from military service. Following this, all the veterinarians that could be spared from the various camps and remounts have been discharged and with the rapid sale of public animals, additional veterinarians are being discharged from day to day. So that a considerable majority of those in the army veterinary corps in the United States at the time of the signing of the armistice have already been released.

When the sales of horses and mules already scheduled have taken place, more than 100,000 animals will have been disposed of, leaving less than 150,000 yet belonging to the army in the United States.

The Army and Navy Journal is authority for the following:

A bulletin has been issued from the office of the Director of Purchase and Storage, War Department, stating that the Remount Division will sell at public auction at various camps throughout the country 94,043 surplus horses and mules. Included in the number are 27,503 cavalry horses, 30,214 artillery horses, 31,455 draft mules and 4,871 pack mules. The sales, which are to take place on various dates in February, March and April, will be held at Camps Beauregard, Bowie, Cody, Custer, Devens, Dix, Dodge, Doniphan, Funston, Gordon, Grant, Greene, Hancock, Jackson, Johnston, Lee, MacArthur, McClellan, Meade, North Charleston, Pike, Sevier, Shelby, Sheridan, Sherman, Taylor, Travis, Upton, Wadsworth and Wheeler, Fort Bliss and at Newport News.

The horse and mule sale which has been going on at Fort Sam Houston was one of the most successful ever held, writes a correspondent. The sale came to a close Jan. 26 and over 1,000 were sold, many being put up in pairs or some being offered in working lots of four. The mules brought high prices, a number of pairs

selling for $430, the average work horse was around $75, while the cavalry horses sold for $65 and $70.

The cancellation of the auction sale of more than 1,000 horses at Camp McClellan, Anniston, Ala., on Jan. 20 caused much speculation as to whether the Government had changed its plans as to the disposal of draft and saddle animals contracted for. It was learned, however, that the sale had been merely postponed because of the report that some of the horses had glanders. It is the policy of the Government to sell only sound animals and the auction was held up pending an examination of the horses for that disease.

Some idea of what has been done in furnishing horses and mules for overseas service may be gained from a report made by the Statistical Section of the Remount Division. This shows that up to Jan. 11 there had been shipped overseas from this country a total of 67,948 animals, which included 5,489 cavalry horses, 33,396 draft horses, 28,088 draft mules and 975 pack mules. The total number of animals lost en route overseas so far reported is 600 horses and mules, or less than one per cent. of the total number of animals shipped. The total number of animals purchased overseas to date is 152,336. Purchases of horses in France amounted to 109,848; in Spain, 1,531, and in Great Britain, 11,898. The value of purchases in France was $43,122,093.52; Spain, $589,159.96, and Great Britain, $5,314,711.15, or a total of $49,025,964.63 for 123,277 horses purchased overseas. The total number of mules purchased overseas amounted to 29,050, with a value of $11,115,846.72. There were 9,341 mules valued at $2,895,927.76, purchased in France; 12,941 mules with a value of $5,619,155.74 purchased in Spain, and 6,777 mules valued at $2,600,763.22 purchased in Great Britain.

There were on hand with the A. E. F., Dec. 25, 1918, a total of 191,631 animals. This total included 26,023 cavalry horses, 109,528 draft horses, 48,614 draft mules and 7,466 pack and riding mules. The total loss overseas to Dec. 25, 1918, amounted to 42,311 animals, which included 36,189 horses and 6,122 mules. No arrangements have yet been made by any foreign government for taking over the animals belonging to the United States which are now in Europe. The matter has been informally discussed in this country and the Remount Division was informed that no objection would be raised if the animals should be turned over to the Allies, as there is an ample supply of animals in this country.

Plans are now being outlined by the Remount Division for the encouragement of horse breeding in this country, with a view to supplying suitable cavalry and artillery horses in the future. Reports from the Bureau of Animal Industry show that there were 2.9 per cent. more horses and 8.4 per cent more mules on the farms in the United States on Jan. 1, 1918, than there were on Jan. 1, 1914. According to reports there is no appreciable decrease in the number of animals in the rural districts of England, while there is about twenty per cent pre-war decrease in France.

America has the largest supply of horses of any country in the world, but is the poorest supplied with desirable cavalry mounts, and there is much interest in a movement now afoot among returned army officers to see that this condition is bettered in the future. The writer wishes to be advised by those acquainted with long distance riding, in and outside the army, as to what constitutes a satisfactory test for young horses to prove them of sufficient soundness, speed and endurance to qualify for cavalry mounts after they reach maturity. Also test for mature horses to parallel the most severe exercise they would be called upon to undergo in actual war conditions.

"Many rides of excellence were made by individual horsemen in the United States in the days when the army was engaged in keeping the Indians on their reservations in the trans-Missouri country. Col. Richard I. Dodge tells of an express rider in Texas who carried mail from El Paso to Chihuahua, a distance of 300 miles, with a weight of 200 pounds, taking a week to go and a week to return and using the same pony continuously for six months. As the country was infested by Apache Indians the man had to ride by night and hide by day, doing 100 miles at a stretch and resting his pony four days between trips. In 1879 several single couriers of Gen. Wesley Merritt's command rode from Thornburg's rat hole to join the main column, 170 miles, in a little less than twenty-four hours, or at the rate of seven miles per hour.

"There are some wonderful feats of endurance by men and horses recorded in the War Department, considering that the more members engaged the slower the pace. Capt. A. E. Wood of the 4th Cavalry rode with eight men 140 miles in thirty-one hours in pursuit of a deserter at Fort Reno, Indian Territory, in September, 1880, or at the rate of four and a half miles per hour. Neither horses nor men were specially selected. The report says that they rode continuously at a walk and a trot. Four men of Co. H, 1st Cavalry, in 1880 carried dispatches from Fort Harney to Fort Warner, 140 miles, in twenty-two hours over a bad road, or at the rate of 6.4 miles. The horses were in good condition at the end of the ride, and after one day's rest made the return trip at sixty miles a day."

18,000 horses and mules, the whole number in

the hands of the British remount commission in this country and in Canada, have been sold. The animals brought excellent prices, particularly those sold in Canada. Horses sold by the British army in England brought a higher price than anywhere else, and mules a lower price. It is said that if the Bureau of Animal Industry would permit the importation of mules from the battle fields and training camps of Europe the British army could pay transportation from there to the United States and sell them at a profit over what they are bringing in England, where a mule larger than a burrow is not wanted as a work animal.

Col. L. A. Merillat has been released as chief veterinarian of the first army, and detailed to spend a few months at the Alfort Veterinary College and later in the School of Application for Military Veterinarians at Saumur, before returning to the United States. This signal recognition of the work that Col. Merillat has done is well merited and will be pleasant news to his thousands of veterinary friends in America.

A veterinarian in the First Army writes: "The first army, the only one that engaged in the recent operation, has moved to a rest area after the very trying and arduous days of the past four months and is enjoying a much needed rest. I used the word 'enjoying' wrongly, perhaps, as we are really not as contented as we should probably be, because of the everlasting longing for home and the uncertainty of our sojourn in France.

"With the hostilities over, the army has turned its attention to discipline and training, and this, I find to be more of a strain on an independent man's nerves than actual fighting.

"We turned over all of our animals, excepting 22,000, to the army of occupation (Third Army). With these 22,000 animals we marched 250 miles to the interior of France, which after the extreme test of the Argonne-Meuse campaign, landed them here in pretty bad condition. This long, hard march was necessitated by lack of cars, owing to the great call for cars by the army that went forward. This shortage of cars has operated very materially to the disadvantage of the allies throughout the whole war. During the two months immediately preceding the opening of hostilities in 1914, the Huns, through one pretext and another, succeeded in taking a large number of passenger and freight cars over into Germany, and their lack has been constantly felt ever since. The Americans brought over a good many cars and locomotives, but never enough to properly transport and feed the millions of troops engaged in the struggle. This ugly situation not only hindered the allies, but had a calamitous effect upon the civil population. Localities had to live from their own resources as in the days of old, and when one adds to this the fact that no civilian in France, during the war, operated an automobile and no civilian was allowed to drive horses except on permit of military authorities, you can imagine in what sore straits the French nation found itself during these years.

"This is a phase of the situation that was not much discussed in press reports before the signing of the armistice, as it would have been an acknowledgment of weakness. We have great hopes of an early improvement of the situation. Imagine people who have had luxuries all their lives foregoing all means of getting about except their feet, and living on a ration allowance prescribed by the government month after month, year after year, and no cheating either. In Europe people obey the laws or go to jail. It is not the actual privations that hurt, but the restrictions that 'get on one's nerves' when continued so long.

"But, after all, regardless of how I long to be home, I am glad that I came. It has been a great privilege to be here. The events are all of the never-to-be-forgotten kind. There are not many wars. There have never been any as big as this one and there have been few battles as fearful to behold as the Argonne-Meuse operation which continued day and night, from September 26th to November 11th, and which resulted in driving the Huns from almost impregnable positions. The forest of Hesse, the forest of Argonne and the awful shell-torn hills around Monfoucan are all places that will be hard to forget. They seem more like hades than earthly areas. The towns are just heaps of stone and brick. The trees are torn into shreds. Land is thrown into heaps that just cannot be described. Here Dante could have gotten many an inspiration. But, saddest of all are the telltale crosses of wood, numbering thousands, each of which represents a tragedy in an American home and which shows the price we paid."

Recent Assignments, Transfers, Etc.

Capt. C. E. Cook to Louisville, Ky., Camp Zachary Taylor, as camp veterinarian.

Maj. L. A. Klein, who has been on duty at the surgeon general's office in Washington since soon after the outbreak of the war, has returned to his former position as dean of Pennsylvania College.

Maj. W. J. Stokes has been transferred from Camp Greenleaf to the surgeon general's office in Washington.

Col. Griffin has closed up the affairs of the veterinary training school at Camp Lee, Petersburg, Va., all material and personnel having been finally disposed of.

Capt. L. Levenson, relieved from duty at Camp Las Casas, San Juan, Porto Rico, and ordered to Camp Dix.

(Continued on page 153)

DEPARTMENT OF

BOVINE PRACTICE

Edited by JOHN FRANCIS DE VINE, D. V. S.

Acute Indigestion in Calves

IN my previous article I discussed some of the general principles to be applied in the proper feeding of young calves, but I did not mention a disastrous ailment of young calves often seen in pure-bred herds of the Channel Island breeds, an ailment which for want of a better name I have styled acute indigestion.

Possibly it might rightly be styled reflex epilepsy, since if we were to ignore the postmortem findings the symptoms are referable more to the central nervous system than to the digestive tract. I have never heard this condition discussed in veterinary circles, neither have I seen it described in veterinary literature. An analagous condition in infants is called acute indigestion by medical writers.

History and Symptoms

One of the finest and sleekest calves in the herd, varying in age from one week to three months, will suddenly refuse part or all of its milk, stand around or lie about stupid and listless for a few minutes to a few hours, either gradually or suddenly developing brain symptoms, standing with its head pressed against the side of the wall or some hard object, it will have a paroxysm of blatting, followed by all the manifestations of epilepsy—lying on its side, stiffening of the muscles, pirouetting of the eyes, champing of the jaws, frothing from the mouth, possibly emissions of feces or urine, in some cases death following in a few minutes. Others finally relax, particularly if the case has received proper treatment early. The cases that relax may or may not be seized with subsequent convulsions. If the convulsions are repeated the termination is usually fatal. If, however, they are warded off, the animal may gradually take an interest in its surroundings, possibly stand up again in a few hours and by careful nursing become normal. But even in the recovered cases there is usually more or less lingering of the brain symptoms, resembling immobility in the horse, for a few days to a few weeks. Death usually ensues so rapidly that a veterinarian seldom has an opportunity to treat the case until too late, unless those in charge are familiar with the seriousness of the malady. Where a veterinarian is called immediately when a calf refuses its feed or where an owner or herdsman has had considerable experience with this ailment and are on the watch for it, there is a greater possibility of saving some of the cases.

Autopsy usually reveals a mass of undigested casein in the calf's stomach, varying in size from two to eight pounds, of the consistency of old, badly made, tough cottage cheese. All the rest of the organs are normal so far as can be determined microscopically.

Treatment

Death usually ensues so rapidly that treatment is of little avail, but if treatment can be begun before the brain symptoms are manifest, progress may be aborted or the convulsions mitigated with a resultant recovery. In fact, in one particularly large herd of Guernseys where this trouble caused the death of many calves, with the assistance of a very capable herdsman I have been able to save fully 50 per cent of the calves attacked, and finally have eliminated the trouble entirely by a properly diluted diet. The treatment that has served me best is full doses of liquid peptonoids, the minute the calf is noticed to be at all abnormal, followed in about twenty minutes by a pint of lime water, this is to be followed every half hour with from eight ounces to a pint of warm physi-

ological salt solution, depending upon the age of the calf. This to be repeated from two to half a dozen times, depending upon the case. A high enema consisting of warm water and oil should be forced in with a pump and tube at the very outset and repeated several times during the day.

I have used lobelien sulphate, hypodermically, and chloral per rectum with apparent advantage in some cases, in either warding off or influencing the severity of the convulsions.

Treatment is best applied in the form of prevention.

Prevention

This acute trouble has long been recognized among breeders of the Channel Island breeds; as a matter of fact there have always been individual cows in the breeds where the solid content of the milk is so unusually high, that more or less trouble has been experienced in raising their offspring on the dam's milk. This trouble has sometimes been manifest by a diarrhea, the cause of which was attributed to too much fat, which in most cases was true, since butterfat, when in excess of the amount which can be digested and assimilated has a similarity to other oils and fats, acting as a cathartic.

As the knowledge of chemistry of milk increased, experts advised the dilution of the whole milk with skim milk as a remedy for this condition. This usually worked satisfactorily providing the amount fed so diluted was not in excess of what the calf could properly and wholly digest. With the increase of the breeding and selection of high-testing dams or families, mated with sires of high-testing families, producing in turn more regularly high-testing dams, which are so desirable for large official records, acute indigestion became more prevalent, and to get in close touch with a large herd of Guernseys or Jerseys and inquire into their calf troubles usually meant that one would hear of an occasional death from this so styled "peculiar and uncontrollable ailment."

In searching about to find relief, animal husbandmen and others advised as a remedy that which seemed to help in a measure, in controlling the diarrhea, i. e., the dilution of the whole milk with skim milk.

While attending a Guernsey breeders' meeting a few years ago a remedy for this ailment was asked for by a breeder, who had lost several calves. A professor of animal industry from one of our state colleges who was addressing the meeting, repeated the advice of diluting the milk with skim milk. I could not refrain from telling him that he was dispensing bad advice. This is obvious if we stop to consider the nature of the complaint and the composition of the milk.

We must first get it clear in our minds that the trouble in these cases is due to lack of digestion of casein rather than lack of digestion of fat. Fortunately the lack of digestion of fat is usually manifest by a diarrhea, which to an intelligent calf-feeder sounds the warning that the calf is getting too much.

Secondly, we must recognize that the milk of all high-testing cows is not only high in fat but is also high in solids, not fat, which of course includes the proteids. For instance, if we should have a Holstein milk testing say 3 per cent fat, we would probably have total solids of about 11.5 per cent; whereas if we take a Guernsey or Jersey milk testing 6 per cent, we would usually have about 16 per cent total solids. If we separate the fat from such milk we still have a milk heavy in solids, but if we take a 6 per cent milk and dilute it with skim milk we will have a milk higher in solids than the original milk and of a kind of solids that taxes the digestive tract the most. To illustrate, if we should take two pounds of whole 6 per cent milk having a solid content of about 16 per cent and add say a half pound of skim milk, as is recommended by those advocating this method, we would then have a milk with total solids of about 16.2 per cent, but only 4.8 fat.

It is rather strange how the fat of the Channel Island breeds has been charged with making its milk less digestible for infants notwithstanding that if you consult the works of authorities on the home modification of cow's milk for infant feeding, invariably the directions begin something like this, "After standing on ice, etc., take off the upper part 'top milk' of a quart bottle of fresh cow's milk so much (depending on the age of infant) adding milk sugar, filtered or boiled water, lime water, barley water, etc."

If we ask physicians why they do not use whole milk, they quite likely will say it is because the milk is "too rich." Ask them what they mean by "too rich", and the answer probably will be "too much fat", and still the ration just cited con-

tains much more fat and less other solids than the original milk.

Notwithstanding that butterfat from a healthy cow and produced by cleanly methods is usually one of the most easily digested elements of food for infants, still it has been and is today accused of being the indigestible content of milk.

This is equally so with calf feeding. Some experienced calf-feeders ignore entirely the casein content of the milk in attempting to correct digestive troubles.

Recently I was called to see a valuable Guernsey calf about three weeks old that had been suffering from indigestion and constipation for about two weeks. He had received all kinds and combinations of oils, cathartics and skim milk and still was literally starving to death. When we diluted some whole milk with plain warm water and added some 20 per cent cream, increasing daily the amount of cream necessary to regulate the bowel movements, in five days the calf was quite bright and hungry and soon became fat, sleek and strong.

The remedy for the prevention of acute indigestion is rather simple and convenient, i. e., the removal of the calf from its dam in from twenty-four to forty-eight hours after birth and the dilution of the dam's milk with warm water—one part of warm water to two parts of whole milk. This is an easy and satisfactory formula. In this way the customary number of pounds may be fed at each feeding. We are simply doing to the milk of high solids what nature does through the Holstein to the Holstein milk. There is still the proper proportion of solids but in greater dilution, and the only function yet ascribed to the water content of milk is that it acts as a dilutant and furnishes bulk, holding the other contents in solution and making them more digestible. It seems quite clear to all that the holding in solution of the solid content of the milk has its advantages since nature so arranged it, but some question the advantage of bulk. Such reasoning can be disproved by analogy since experience has taught us that the bovine not only in early life but in adult life, thrives best when the concentrates are mixed, or diluted, so to speak, with large amounts of succulence and roughage.

By way of sealing the argument against dilution with skim milk, it is common knowledge that acute indigestion is more common among calves that are being fed liberally on skim milk than among those fed on whole milk and therefore the addition of skim milk to correct this trouble would be on the theory of *similia similibus curantur,* and if practiced in strictly homeopathic doses I fear the calf would soon decide that life was not worth living.

Queries and Answers

TUBERCULOSIS IN FOWLS

Will you kindly describe in the Journal the symptoms of tuberculosis in fowls and give the cause, etc.?—R. L. P., Minn.

REPLY: The description given tuberculosis in fowls by Kaupp in "Poultry Diseases" being concise, explicit, and authoritative, we reproduce it as follows:

Symptoms.—An absolute diagnosis cannot be made during life, as the symptoms observed are common to many conditions, especially in the early stages when there are no positive external symptoms by which it can be recognized. The bird becomes emaciated. The rapidity of emaciation, as in other animals, depends upon the progress of the disease; that is, the susceptibility of the bird, as well as the degree of infection

The comb appears pale, the bird becomes dull and sleepy, has "no life." If the joints become affected there will be lameness in case the affection is in the legs and swollen joints, and often where affection of the skin and mucous membranes is noted there is ulceration (sores). This latter condiiton has been especially noted in parrots. These skin areas are made up of a cheesy material (caseation necrosis), which is covered by a thick, rather hard, crust, whitish in color. At times it is noted that these crusts become rather horny.

The red blood cells in a tuberculous fowl may be greatly reduced (as low as 1,000,000), and the hemoglobin as low as thirty-five per cent. White blood cells are greatly increased.

Cause.—The bacillus tuberculosis, which was discovered by Koch in 1882, is the cause of this disease. There are four principal types of this organism. The one peculiar to fowls is the avian type. Most authors consider that while the chicken has considerable resistance to the human type, it will and does become infected with this type.

Tuberculosis in chickens is rare in some sec-

tions, and is very common in other localities in the United States. Although it is widespread throughout the United States and Canada, it was first reported in this counry in 1900, but received slight attention until 1903. It also occurs in turkeys, pigeons and pheasants, and cases in wild geese have been reported. The loss from this disease seems to be increasing.

Mode of Spread.—In the progress of tuberculosis in chickens, at times diarrhea is noted. In these cases there are found tubercular ulcers in the intestinal tract. In these cases the disease spreads very rapidly, as birds are continually picking food from the ground and floor where contamination is sure to have taken place.

If scraps are fed to which tuberculous sputum has found its way or if the birds are allowed to devour parts of an animal dead of the disease, there is liability of their contracting tuberculosis.

There is a possibility that birds following tuberculous cattle may become infected as do hogs. It has been argued that the temperature of the bird is so high that it furnishes an unfavorable field for the human and bovine type of germs, which thrive at temperatures close to 98 and 101 deg., respectively. It has, however, been found that these germs soon adjust themselves to such changes of temperature and to a certain degree to differences in food.

One case, a hen, was sent to the laboratory with the history of having had access to the sputum of a person afflicted with tuberculosis. Upon autopsy, small pearl-like nodules were found throughout the liver, in the lung substance and over the serous lining of the intestines and abdominal cavity. A microscopic examination of the lesions revealed the bacillus of tuberculosis. It more closely resembled the human than the avian type.

Postmorten findings.—Owing to the fact that most birds are infected with tuberculosis through contaminated food, we find most of the lesions in the abdominal organs. Of these the liver is most diseased. Next comes the spleen and the serous lining of the cavity. The areas may appear as pearly, grayish-white nodules, varying in size from a pin-head to a pea, or even larger. In the larger nodules will be noted a cheesy mass, which as the lesions become older becomes impregnated with calcium (lime) and then cuts like gritty material. The intestines of a tuberculous bird will be found to contain ulcers, usually small, and a thickening of the walls. Small tubercles will be found in the lungs and other adjacent tissue. As in other animals the bones become tuberculous; later calcification takes place.

Treatment.—Treatment of the infected birds is not to be thought of. The only sure means of eradication is destruction of the flock and removal of the henhouse to a new location.

Birds from an infected flock should not be sold for breeding purposes, and those killed for food should be inspected by a competent veterinarian.

All birds in a flock infected with tuberculosis that die should be cremated. All droppings from the henhouse and runs should be disinfected with calcium chlorid, or other reliable disinfectants, before being used as fertilizer.

IMPACTION OF THE SMALL INTESTINE

I was recently called to see a three-year-old horse, which I found in great agony. He would lie down, stretch out and groan, get up and run around the shed, then leaning against the wall, he would circle his body like a hoop, bringing his head to the left side with his left foot brought as far forward as he could get it. He continued to repeat these actions for thirty-six hours. There was considerable flatulence; breathing rapid; pulse weak and quick; temperature 103° F.

I gave a physic ball and warm water injections; applied heat to the body; gave a few small doses of aconite and also morphin sulphate in one grain doses, hypodermically.

After thirty-six hours had passed without apparent benefit, I decided that the pain was due to some irritation of the bladder, and that if I could apply something soothing directly to the irritated part, relief might be afforded. I made a solution of one dram of tincture of belladonna to a quart of warm water, and injected it through the ureter into the bladder with a catheter and a well cleaned spray pump, which was all there was at hand to use. In fifteen minutes the horse was much improved and in three days was as well as he ever was.—J. W. M., Ky.

REPLY: I believe your diagnosis was wrong, your treatment ineffective and inadvisable, even had your diagnosis been right.

From the symptoms, it seems reasonably certain that this animal was suffering from intestinal impaction, probably of the small intestine and well forward. It is probable that your "physic ball" contributed to the relief of this impaction, but in an acute condition such as this if one thinks cathartics are necessary, why not give the rapidly acting cathartics, drugs that will act before the animal recovers or dies? Why put off relief in this case for thirty-six hours if it was thought cathartics would relieve it. When the pulse was weak and there were no symptoms of any large congested areas and not much elevation of the temperature, why give aconite? One grain doses of morphin sulphate, unless repeated at short intervals for

considerable time, could hardly have an effect other than that of lessening intestinal secretion and peristaltic movement, an effect plainly contraindicated in this case,

We don't regard the symptoms indicated as those manifested by an animal suffering from pain in the bladder. Standing with the back sharply arched, or if the pain is very severe, "paddling", are the usual symptoms of pain in the bladder, and if the pain had been due to irritation of the bladder, belladonna in so small a dose could not have had any effect upon it. Why not use quinin and urea hydrochlorid?

One is forced to conclude that *vis medicatrix naturae* was the good physician in this case, and while your treatment can hardly be said to be harmful and the case recovered in spite of it, it cannot be said to have been beneficial or to have contributed to the recovery.

OINTMENT FOR HORN GROWTH

The veterinarian is frequently called upon by dairymen and calf owners, for an agent, which he is informed the veterinarian dispenses, that will destroy all horn growth or rather prevent its growth in the young calf.

Of course, potassium hydroxid or caustic potash is the agent used, but in most instances the veterinarian prefers not to reveal the nature of the remedy, but the dispensing of these sticks usually discloses their constituents.

Can you advise me as to the formula for dispensing these in liquid or ointment.—V. Q., Tex.

REPLY by Dr. E. L. QUITMAN: Potassium hydroxid would saponify ointment bases. It is soluble in 0.4 parts water at 77° F., which you could dispense with directions to apply carefully so the solution will not run over the skin. It is also soluble in two parts alcohol. This solution is yellowish in color, but in keeping turns brown, dispensing it in alcohol, the color and odor would disguise the drug.

You might try chromium trioxid (chromic acid) in saturated solution—water only (explodes with alcohol, ether, glycerin, etc.) or an ointment with petrolatum might be tried.

Humane associations in many localities are endeavoring to secure the passage of laws prohibiting the dehorning of cattle more than six months of age, on the grounds that dehorning may better be done when the calf is young and that dehorning mature animals is extreme cruelty. These conditions are true and these, the efforts of the humane associations, should receive the support of veterinarians everywhere.

CHLOROFORM BEST FOR FISTULA OPERATION

I want to use some rapid method of producing hypnosis for fistula operations, and would like an opinion as to whether chloral hydrate, intravenously, has been found successful where due care has been exercised to avoid infection in administration.

What size dose would you recommend and in what dilution? Is there a more satisfactory drug to use than those used in general inhalation anesthesia?—G. A. H., Ia.

REPLY: Chloroform anesthesia is the one of choice for the radical operation for fistula, but if you must use chloral, do not use it intravenously. It is both dangerous and difficult to control if so given.

Give it in a rectal injection, after first emptying the rectum manually. For a 1,000 to 1,200 pound horse, give two ounces, and for larger horses, somewhat more. Give the chloral dissolved in exactly eleven times its weight of water. That is, if you give two ounces of chloral, dissolve it in 22 ounces of water, and watch the animal for a few minutes to see that it is not thrown out. Be ready to operate in not more than one hour following the injection. If a solution more concentrated than one to eleven, or if a solution more dilute is used, absorption is delayed and in the former case the difficulty of retaining it in the rectum until absorbed is increased.

There seems, however, to be a difference of opinion as to its administration. See the article by Captain Childs on page 140.

SUCCESSFUL TREATMENT FOR RANULA

I have had three cases in horses of circumscribed swelling under the upper lip, about the size of a base ball. In each case I made an incision and evacuated the contents, which was the consistency and color of honey. In each case the swelling recurred in about two months.

I put each of the animals on a treatment of potassium bichromate for blood dyscrasia, but with no visible improvement. Can you tell me what the trouble is and the proper treatment?—A. E. L., N. Y.

REPLY: The cysts that you describe are due to an obstructed duct. They will be permanently cured if you will swab the inside of the cysts with something to destroy the secreting membrane, after evacuation of the contents.

Tincture of iodin applied full strength to the entire interior surface will usually accomplish this. First make, with scissors, a crucial incision clear across the cyst.

Then impregnate some cotton with powdered bichlorid and swab the inside of the

cysts will quickly and certainly destroy the secreting membrane.

Textbooks advise dissecting out the secreting membrane. This is tedious and wholly unnecessary.

PLANT POISONING

I would like some information relative to a case that I was called upon to treat last September—a four-year-old mare showing some very strange symptoms.

She was out on pasture with her mate, when the owner's attention was attracted by her loud breathing and her staggery gait. Examination showed a temperature of 100.1° F.; respiration 49; inspirations normal in sound; expirations very loud; peristalsis normal; pulse hard and fast. She acted delirious, would lie down about five minutes and get up again. There were no signs of pain. She perspired profusely as she became weaker.

She was taken sick at 4 p. m. and died the next day at 10:15 a. m.

Postmortem examination showed the larynx and pharynx highly congested; liver congested, hard and swollen; heart soft; pericardial sack contained six to eight quarts of clear fluid. Esophagus highly congested to the orifice. Stomach congested at the cardiac portion. Intestines normal. Conjunctiva highly congested. Spleen normal.

Can you tell me what the trouble was?—J. H. W., Mich.

Reply: Plant poisoning.

LITERATURE ON RABBITS

Query: What information is available on the diseases of rabbits and what is the best treatment for "sniffles" in these animals. Informa-
will quickly and certainly destroy the secreting membrane.

S. W. S., Ill.

Reply: The information available on diseases of rabbits is woefully inadequate for the veterinarian who has calls to treat the various ailments of these animals when reared in domestication.

The United States Department of Agriculture has a bulletin (Farmers Bulletin No. 496) on raising Belgian hares and other rabbits, which is a satisfactory discussion of rabbit culture and gives many hints in the matter of sanitation. It may be had for the asking. Hoare's System of Veterinary Medicine contains a discussion of the following diseases of rabbits: Bacillary necrosis; influenza; septicemia; psuedo tuberculosis and venereal disease.

Dr. E. C. Schroeder of Bethesda, Md., enumerated the following publications as of value to those interested in rabbit culture and treatment:

The Rabbit. How to Select, Breed and Manage the Rabbit for Pleasure and Profit, by W. N. Richardson. (A pamphlet of 34 pages, published in 1896.)

Rabbit Culture and Standard. A Complete and Official Standard of All the Rabbits, by W. F. Roth, M. D., and Charles T. Cornman. (Pamphlet of 92 pages, published in 1914, which claims on its title page that it has been adopted by the National Pet Stock Association of America and the New Zealand Red Hare Club of America as their official standard.)

Rabbit and Cavy Culture, by the late W. F. Roth, M. D., and Charles T. Cornman. (Pamphlet, dated 1916, of 134 pages.)

Breeding and Care of Rabbits, by C. S. Gibson. (A book of 192 pages, dated 1916.)

Practical Rabbit Keeping, by George A. Townsend. (A book dated 1912, of 299 pages.)

MORE ABOUT RING-BONE TREATMENT

I have a stubborn case of ring-bone in a horse, which has so far failed to respond to medicinal treatment—lameness still persists. I would be grateful for suggestions as to the advisability of operative procedure.—M. T. C., Ky.

Reply: Firing is the accepted treatment for ring-bone (see page 86, February Journal). If the exostosis is located where it will mechanically interfere with the movement of the joint or tendon, the prognosis is not good; otherwise it is very good. Puncture firing is the type usually resorted to and the punctures should be deep; they need not, however, be numerous.

CAN YOU TELL HIM?

I would like to hear, through your columns, from practitioners who have had practical experience with the use of the J. H. Kate chain saw, in obstetrical work in the mare and cow. Or if experience has been had with the obstetrical shears, I would like to know with what success these instruments have been used.

I would also like to ask if any have used Dunn's safety spancels for throwing harness. I have been using a foot hopple, with a snap and pulley, in connection with the Knowles' webb harness. I use this for throwing colts for castration, but my pulleys seem to be so designed that they wear the ropes out very fast, as a good hard twist rope will wear only three or four days, in heavy work. I would be glad to get some ideas on a handy safe foot hopple that will be easy on the ropes.—J. W. R., N. D.

Department of Live Stock Poisoning

By L. H. PAMMEL, Ph. D., Ames, Iowa
Professor of Botany, Iowa State College

Readers are urged to take advantage of the opportunity offered by Dr. Pammel, for the identification of specimens of supposedly poisonous plants. Two good-sized specimens, carefully packed, should be sent to him direct, with such history as may be available. Simply mention that you are a reader of the AMERICAN JOURNAL OF VETERINARY MEDICINE and no charge will be made for this service.

The Whorled Milkweed

DURING September I received from Dr. John A. Bestall, of Hotchkiss, Colo., two letters, one through Dr. Campbell and one directly to me, relative to a plant which the samples sent proved to be the whorled milkweed, *Asclepias verticillata*. I am publishing both of these interesting letters.

"I have been reading, with great interest the recent articles in the Journal relating to poisonous plants, and I note that Dr. Mayo advocates the use of potassium permanaganate in conjunction with aluminum sulphate as the best remedy for plant poisoning; I think I may add a little to the prestige of this old but most valuable remedy by relating a few of my experiences with similar poisons.

"Case I. On May 27, I was called to a place about six miles from Hotchkiss to see a herd of sheep. The animals had been dying mysteriously from the afternoon of the day before and three hundred and fifty were already dead. When I arrived on the scene, a sheep camp in the hills, I found besides the three hundred and fifty sheep dead, about six hundred in convulsions, and as there was no time to be lost I went to work with the idea that I had a case of plant poisoning to deal with. I began giving potassium permanganate with alumium sulphate per os, but after about an hour had elapsed and I was getting no results, I began to inject the permanganate hypodermically, and almost immediately began to obtain results. My reason for making this change was that I realized that as the poison was in the blood stream the hypo was the quickest means of reaching it. By this time about seven hundred more sheep were down with convulsions.

"I instructed two assistants (sheepherders) to continue giving the treatment by mouth while I applied the hypo, and I instructed two other herders to use trocars upon the badly bloated victims. To prevent the animals from getting upon their backs, the sick sheep were separated from the others in adjoining corrals and two men instructed to seize all animals showing signs of convulsions and place them in line for treatment. The sheep kept coming down until 1 p. m.; the remainder by 6:30 p. m. Of the hundreds of sheep treated that day, only fifty succumbed and they were almost past help upon my arrival.

"Dr. Marsh of the B. A. I. afterward investigated this case and proved conclusively that the poisoning was due to the whorled milkweed and that three hundred grams of the stalks were sufficient to kill a full grown sheep.

"Case No. 2. July 20, I was called to see a pet lamb in town with a history of its hind limbs being paralyzed. Soon after my arrival this animal went into convulsions. I tried to quiet it with narcotics, but failing to obtain results, I injected the potassium permanganate and the little fellow was up and feeding in two hours. I found he had been feeding upon the whorled milkweed also.

"Case 3. July 29, I was called to a farm one mile from town and found one sheep dead and four in convulsions. I also noticed this weed growing in the pasture in abundance. The owner said the sheep had been feeding upon it, as the pasture was almost destitute of other feed. I injected the potassium permanganate solution and had the satisfaction of seeing these four resting easily in one-half hour. They all made a nice recovery. I advised the owner to change the sheep to another pasture, which he did, and this ended his trouble.

"This data may furnish interesting reading for some of your readers, and if any of them have any suggestions to offer in the way of treatment I shall be very glad to hear from them."

In the letter of Dr. J. A. Bestall to the writer he says:

"It affords me great pleasure to forward by today's mail some specimens of the whorled milkweed. Dr. Campbell informed me that the specimens I sent him, with my account of an

interesting case, were too small and I hope these I now send will be more easily recognized.

"I have always interested myself in these plants since working with your specimens in the Chicago Veterinary College, of which school I am a graduate.

"I beg to enclose herewith the bulletin issued quite recently by the Colorado Experiment Station relative to the whorled milkweed, it may interest you to see that the case I wrote about is mentioned therein, page 4, paragraph 2, and my account to Dr. Campbell gives more details."

During the summer, Dr. Geo. H. Glover, I. E. Newsom and Dr. W. W. Robins published a bulletin on the whorled milkweed,[1] in which the Bestall case from Hotchkiss, Colorado, is referred to. These writers also report a loss of 750 sheep out of 1,400 near Cortez in 1916. On June 8, 1918, five miles north of Cortez, Colorado, another loss is recorded from the same plant. The authors state that as early as 1909 the weed was suspected of being poisonous. A sheepman near Colona, Colorado, lost 85 lambs and Dr. A. P. Drew of Grand Junction, Colorado, suspected its connection with poisoning to cattle from eating hay.

In my "Manual of Poisonous Plants," I mentioned poisoning from the following species: *Asclepias vestita, A. criocarpa, A. mexicana* and *A. syriaca.* The circumstances seemed to have been largely circumstantial. I also stated that our common milkweed *Asclepias syriaca* had been suspected and subsequently I published a note on alleged chicken poisoning in the Journal. The excellent Colorado bulletin gives a complete description of the plant from the germination of the seed to the production of leaves, flowers and seed. The *Asclepias verticillata* plant is quite common in Nebraska, the Dakotas and Iowa. Its distribution is as follows: Massachusetts to Saskatchewan, and southward. Most cases of poisoning, according to the authors, have occurred in the fall and winter from the dried plants. Several cases have been reported from feeding hay containing the plant in relatively small quantities. Grazing on the young plants as early as June, and throughout the summer months, has proven disastrous in several instances. It appears from field observations and laboratory experiments that the whorled milkweed is poisonous at all stages of growth and does not lose its toxicity by drying.

"Much of our earlier work to determine accurately the presence of a toxic principle in the plant was entirely negative. In several instances an attempt was made to feed the dry plants to animals but with no success, because it appears that animals would almost starve before eating it. Extracts of various kinds were made and and used with very little or only partial success in showing the presence of a poisonous principle. More recently, however, we have been able to show that by feeding the whole plant to sheep and rabbits, poisoning would follow. Some of these experiments which were followed by a positive result, are detailed as follows:

"These experiments seem to show that the milkweed is quite toxic for both sheep and rabbits, and that our previous difficulties rested largely in our inability to get animals to eat the dry plant when hungry. They seem to eat the green plant quite readily and apparently only a very small amount is required for destruction.

"In the few cases observed in the field and in those animals poisoned experimentally, the following symptoms in sheep have predominated. First, there is dullness, the animal rapidly becoming comatose; this is followed by convulsions at irregular but at shorter intervals until death occurs. The heart-beat is at first very rapid, becoming gradually weaker. There may or may not be a rise in temperaturue. The pupils of the eyes are widely dilated. Autopsy reveals no characteristic lesions. The lymph-glands are injected in many cases, likewise the trachea. There is no evidence of irritation in the digestive tract.

"Before turning sheep into any sort of an enclosure where there is limited forage, a very careful examination should be made of the area, to see that no milkweed is present. A small patch of it may result in a loss of sheep valued at several thousand dollars. Either evade the enclosure, if infested, or clean out the milkweed before the sheep are turned in. If the plants are hoed out, care should be taken to rake them and burn or remove them. Be careful of corrals, orchards and abandoned cultivated fields. In some instances it may be practicable to have several men precede the flock several days before it is driven over a given stretch of road, to hoe out and remove the milkweed along the roadside, or to guard heavily infested areas and herd the sheep away from them."

[1]Bull. Colorado Agri. Exp. Sta. 246: 1-16, f., 1-13 July, 1918.

Reports from various parts of the hog-raising districts indicate that great losses have resulted from the ravages of influenza and pneumonia. At Princeton, Ill., a carload of carcasses was recently shipped to a rendering plant. The districts surrounding Aurora, Plainfield, Wheatland and Sugar Grove, appear to have been the hardest hit in Illinois, three hog breeders in this territory are reported to have suffered losses of upwards of $10,000, and Mr. John Peece, near Pana recently lost 250 hogs, valued at $80,000.

POINTED OPINIONS ON LIVE TOPICS by Readers of Veterinary Medicine

It is in reports like those of this department that the current history of the progress of veterinary science is written. Are you leaving a record of your experience which will help others, as you have been aided by these and other clinical reports? If not, you are earnestly invited to contribute from your experience that this department may be of the greatest service to its readers. By so doing you will earn the lasting gratitude of those who are aided by your suggestions.

Big Head in Sheep as It Appears in Illinois*

ONLY a few years ago, in traveling from Chicago to St. Louis, one could count on the fingers of his two hands all the herds of sheep he saw while enroute, but as I came back to Illinois last February, I noted great changes in the live stock conditions in Illinois. The increased number of small flocks of sheep all along the way was especially noticeable. Doubtless many of these sheep are owned by men who never kept sheep before, hence are absolutely ignorant of the habits and needs of sheep. Also, I believe that the majority of veterinarians, like myself, have not, until recently, paid a great deal of attention to the ailments of sheep.

The first time I was called upon to treat sick sheep, I was up in the air. Up to that time, I had always avoided the subject of sheep ailments. I was called upon to treat valuable pure-bred sheep, and as I was unfamiliar with their troubles, I gave them some treatment on general principles, and waited for a dead one. Autopsy revealed the cause fully. I diagnosed the trouble practically the same as we diagnose diseases in hogs—by a thorough postmortem.

The Illinois climate is quite different from the climate of the localities from which the sheep came. They have been accustomed to a dry climate and although they have ailments there, bringing them to Illinois predisposes them to more ailments than they ever had before. Veterinarians in practice in Illinois have been called upon to treat sick sheep more frequently in the last year and a half than ever before. That I am not an authority on sheep diseases, you will discover before I get through, so I may as well confess it.

I consented to take a part in this program on the subject of sheep, because during the past summer I had personally been brought into contact with what I consider a very peculiar disease in sheep. While I did not make a positive diagnosis, from what I had gathered from men who had seen big head in sheep in the West, I thought that this disease was more like that disease than any other I knew of, so I decided to announce it as "Big Head in Sheep As It Appears in Illinois."

In investigating these different herds, Dr. Schwarze, of the Illinois State Laboratory, and Dr. James McDonald, inspector in charge of the B. A. I. hog cholera control project in Illinois, were with me and these gentlemen certainly did render advice that led to the control of this trouble. In the southern part of the state, during half of June and July there was a very severe drouth. It was about the 16th of August that I saw the first herd of sheep affected with this trouble. There had been a heavy rain in southern Illinois just twelve days before. Some of these sheep had been sick four or five days, when I saw them, and the trouble was greatest in a section of country that was in the drouth area.

About the first symptom noted in a flock of sheep is inappetence of one or more animals. They move slowly, quit eating and if they follow the herd at all, they lag behind. Their temperatures run about 105° or 105.5° F. Closer inspection shows intense lacrimation, apparently an edema, a profuse discharge from the nostrils, and marked edema of the ears. At a certain stage the ears are as thick as one's hand and hang down.

On opening the eyelids, which are glued together, the eyeball is found to be very icteric, the white of the eye being lemon yellow. The skin of the body is also yellow. In many cases the masseter muscles are very edematous. Another symptom is the peculiar position of the head. Some throw their heads straight up; some draw their heads to one side and hold them there stiffly; while others throw their heads on the ground between their front legs.

Upon postmortem examination, the main

*Presented at the meeting of the Illinois V. M. A., Chi., Dec., 1918, by M. J. Huggins, of Springfield.

thing noted is a marked icteric condition throughout the whole body. In some of the cases showing the peculiar position of the head, I have found about an ounce of a sort of serous exudate within the cranial cavity, presumably pressing upon the brain. There are doubtless other anatomical changes that a more experienced pathologist could detect, but these are the main changes that I have found.

As one might expect, there are variations as to the appearance of this disease. Some flocks we find have been running on timothy stubble, oat stubble, and blue grass pasture. Sometimes the disease appears among sheep that are thin and emaciated, but I have encountered it several times in fat sheep. I have seen three herds of prize sheep affected with the disease. I will cite one case.

A young man received a car load of sheep from Chicago. He divided the consignment, giving half of it to his father-in-law and keeping the other half, which he put into a corn field. Night and morning he drove them across an oat stubble field to and from the corral. In crossing the oat stubble field, the sheep would nibble here and there, and I never saw such cases of enlargement of the head as these sheep contracted. The ears hung down and were as thick and puffy as the head and extremely yellow. Those of the carload that the father-in-law got, were put into a corn field and kept there night and day, and none of them were affected. In the herd affected, the animals lived only three or four days from the time the owner noticed the first symptoms. In other herds I have seen sheep live twelve or thirteen days after the first symptoms appeared. In some herds the sheep stop eating, lie around or stagger around awkwardly, refusing to eat anything, for probably eight or ten days. Such cases if driven into another pasture, often get better and begin eating. If returned to the same pasture, they contract the disease again and die.

One sometimes sees a herd that has got beyond the first stage, the edematous stage, and the tips of the ears become very crisp. It is a question in my mind, what causes the ears to become so hard and scabby. In some cases, I thought the exudate oozed out through the skin, and then when the edema disappeared, the ear dried up and looked like dried herring, but as time went on relaxation set in and the ear became normal again.

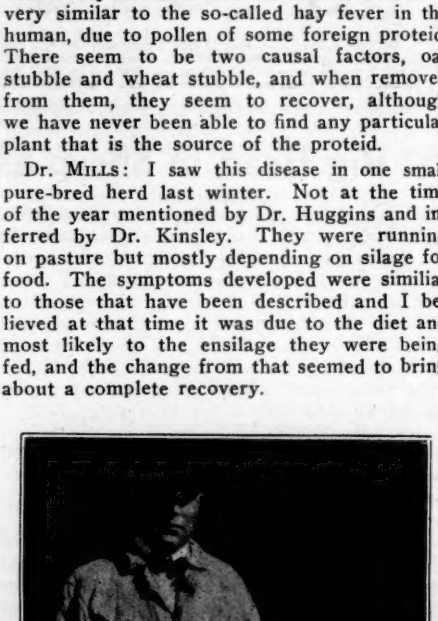
As to treatment, it seems that the herds that are given a laxative improve faster and pick up and get normal again sooner than those not so treated, but we find that if they are taken off of the pasture they are on when they get this trouble and are given different feed, they recover and remain well, unless they are put on another infested pasture.

Discussion

Dr. MAYO: In Kansas, Dr. Dykstra and others told me they found, in addition to the laxative, if the sheep were put in a shed, away from the sunlight, it added materially to their recovery. He suggested that they be kept in a dark place and given a change of feed. Dr. Kinsley would know about this if anyone does.

Dr. KINSLEY: I have seen a good many cases of big head in sheep. It is a difficult disease to control, but I am of the opinion that we will finally come to the conclusion that it is very similar to the so-called hay fever in the human, due to pollen of some foreign proteid. There seem to be two causal factors, oat stubble and wheat stubble, and when removed from them, they seem to recover, although we have never been able to find any particular plant that is the source of the proteid.

Dr. MILLS: I saw this disease in one small pure-bred herd last winter. Not at the time of the year mentioned by Dr. Huggins and inferred by Dr. Kinsley. They were running on pasture but mostly depending on silage for food. The symptoms developed were similiar to those that have been described and I believed at that time it was due to the diet and most likely to the ensilage they were being fed, and the change from that seemed to bring about a complete recovery.



Hydrocephalus calf delivered Feb. 1, from a six-year old Holstein cow, by Dr. J. H. Yoder, Louisville, O.

Dr. KINSLEY: I do not want to be misunderstood simply because I mentioned hay fever, but it has been found that big head in sheep and so-called hay fever have a similar occurrence. It is a reaction which may occur at any season of the year. It is a foreign proteid to which the system has special susceptibility.

Dr. MARTIN: I had what I consider an interesting case recently. A farmer who has 1,700 acres of land, fenced it off into eighty-acre plots and put the sheep in one of them. When the first field was just about bare, the sheep were driven into the next eighty-acre field and so on. They lost a few sheep, but not many. When the sheep were turned on the last eighty-acre plot the owner bought a fifty-acre corn field and added that to his field. They were turned into this field at 9 o'clock in the morning. That night they called me and said they had thirty-two dead sheep. I thought, and I still think, that it was the corn that killed them, nevertheless I posted twelve of them and found the typical lesions of hemorrhagic septicemia. We took the sheep out of this field and about twenty-four died the next day, but the rest were not affected. What killed those sheep? Was it hemorrhagic septicemia or was it the corn? I vaccinated five of the sick ones. Four out of the five died.

MIXED INFECTIONS IN SWINE*

What is hog cholera, from the diagnostic point of view? Some have maintained that the filterable virus disease is practically lesionless so far as the gross examination is concerned. More are adopting that view since they have a better understanding of the complications of hog cholera. I am not certain, but it seems probable that it will ultimately be decided that a pure filterable disease is not associated with any lesions except those that accompany high temperature. The serum producers must eliminate the blood from pigs showing a high temperature with lesions that I have mentioned as being typical cases of hog cholera. Some day we may see many of these same serum producers using these cases only for the production of serum.

Next we may consider hemorrhagic septicemia or swine plague, which is the result of successful infection with a bipolar organism. What are the lesions? The most common type of this disease as occurring in former years, perhaps also this year, consists of the localization in the lungs, and is not acute but subacute in type. That particular form of the disease is characterized by a typical catarrhal pneumonia with or without a fibrinous pleurisy and aside from that there will be hemorrhagic septicemia, petechial in character, in the sub-mucosa and lymph-glands. From observation, correspondence and from previous speakers, it is apparent that at the present time this disease is frequently acute and manifested by petechial hemorrhages in various structures of the body, plus the changes in the lymph-glands and the lesions that are ordinarily considered typical of the filterable virus disease. Necrobacillosis may be septicemic in type, but it is more commonly chronic. Septicemic necrobacillosis, so far as my observation goes, occurs only when the organisms are injected into the body in quantities and more frequently when they are injected intravenously, producing an acute septicemia characterized by the blue belly and symptoms of nephritis. Autopsy discloses a very large spleen, which is frequently necrotic. Petechial hemorrhagic areas are also observed in the kidneys, but differing from those observed in hemorrhagic septicemia, being larger and less distinct of outline.

The subacute or chronic form of necrobacillosis occurs most commonly about the mouth, nose, or nostrils and upon the feet. The lesion, as described by previous speakers, consists of necrosis, the necrotic material later becoming mealy and caseated, emitting a pronounced disagreeable odor. The most extensive losses from this form of necrobacillosis occur among young pigs, and are the result of necrotic stomatitis or bull-nose. Still other conditions are responsible for swine losses. Paratyphoid infection produces an enteritis, the B. suisepticus and sometimes also the B. necrophorus, and frequently the bipolar micro-organism of hemorrhagic septicemia, but in some instances the paratyphoid bacillus is the initial infectant, the other being secondary. The lesions in such instances consist of a croupous and sometimes a diphtheric inflammation of the intestines, in which the exudate can be detected, leaving a denuded surface. Some of us have been guilty of calling that condition necrobacillosis. It is true that if the scrapings of the exudate in that lesion are carefully examined, the bacillus necrophorus is rather commonly found, but why should it not be found when it naturally inhabits the bowel of the hog? We have been guilty of accrediting to it some conditions that it is not responsible for, because it is, as stated, a natural inhabitant of the bowel. All of these conditions, separately or collectively, are very commonly found associated with the filterable virus diseases of hog cholera.

We have been immunizing against filtrable virus disease for several years and there is not, I believe, a question of doubt but what the filtrable virus is becoming rarer than it used to be. Every section of our country has been engaged in its eradication. It has been diminished in its virulence or the hog's resistance has been increased, whichever way you wish to put it.

*Portion of discussion Illinois Veterinary Medical Association meeting, Chicago, December, 1918.

Consequently the loss from the filtrable virus disease has not been so great in recent years. The old fashioned hog cholera has apparently disappeared, but I again urge you not to forget the presence of that filtrable virus and attempt to control all the diseases of swine by controlling the other conditions.

If you would procure the old type of hog cholera, you would be able to find that bipolar organism, but when the bipolar organism is virulent and kills the experimental animal within 24 or 30 hours, you may be certain, or reasonably certain, that it is a factor in the losses of hogs, but do not forget to control the filtrable virus disease. Do not condemn serum because other conditions are now becoming more manifest. In my judgment, these other diseases are now coming to be known as diseases because the filtrable virus disease is being eradicated and these secondary invasions cause the losses, as we have maintained they would do for years.

A. T. KINSLEY.

Kansas City, Mo.

CHLORAL HYDRATE INTRAVENOUSLY FOR ANESTHESIA

This drug has been used quite extensively during the war, by the various veterinary services, as an intravenous injection, in watery solution, to produce anesthesia, or to provide sufficient restraint for surgical operations on horses and mules, and also on bullocks.

As the actions, uses, and methods of administration of this drug, are set forth in most textbooks on veterinary medicine, I am confining my remarks to my own experiences with the drug when administering it intravenously to horses, mules, and cattle, for purposes of restraint, or for producing anesthesia, sufficient for surgical operations.

I have successfully performed several hundred operations on horses and mules, in the field, with no other restraint than a dose of chloral hydrate, given intravenously. I have never had a fatality from its use in this way, but have had on two occasions (once from ignorance and once from carelessness)abscess formations, from allowing the solution to come in contact with the subcutaneous tissues, external to the vein.

As a means of restraint for the larger animals, chloral hydrate, given intravenously, has the following advantages over casting tackle (and the usual struggle that goes with it before the animal is rendered helpless) and the other anesthetics, with their unpleasant odors, uncertain effect, difficulty of application and other drawbacks.

1. *Ease of Administration.* One assistant is all that is necessary, to hold the animal's head while the drug is being administered and to roll the animal into any position I desired afterward, and prop or secure him. I have put animals in the recumbent position in forty seconds with scarcely a struggle, and with no bad after-effects.

2. *Quick Action.* Anesthesia is produced more quickly than with any other drug or drugs, taking from one to two minutes only.

3. *No Struggling.* As there is practically no primary stage of excitement, the animal does not struggle but sinks down quickly.

4. *No "Casting" or Other Tackle Required.* The only restraint needed for the administration of the drug is an operating hood and a twitch.

5. There are no unpleasant odors as from chloroform, etc., and no danger to the patient.

6. The injection of camphorated oil or strychnin, subcutaneously, will cut off the action of the chloral hydrate very rapidly.

7. As in most cases in civil practice the operator must apply the restraint himself (if he wishes it done properly), using chloral hydrate intravenously will conserve his energy and temper, and allow him to start the operation with clean, steady hands.

Apparatus Required for Horses, Mules and Cattle

1. A hollow needle, 1½ to 2 inches long of 12 or 13 gauge.

2. Eighteen inches of rubber tubing to fit the butt end of the needle.

3. A small funnel, which is fitted to the other end of the tubing.

4. A twitch and operating hood.

5. A fresh solution of chloral hydrate is made up with sterile water free from alkali, etc., as follows:

℞—Chloral hydrate ..... ℥ii
Aqua (sterile) ..... ℥viii
M. ft Sol.
Sig. Inject intravenously.

The above dosage will produce anesthesia lasting from one to two hours in a healthy animal of 1,000 lbs. body weight. (I have given ℥iv ss of the drug intravenously to one animal of this size without mishap.) Young healthy horses of 1,500 lbs. body weight should receive about ℥iii of the drug in ℥xii water, if the operation is to be serious or prolonged.

Administer the Solution

Prepare the animal in the usual way for operation, place operating hood on and apply the twitch. See that the needle, tubing, etc., are clean (aseptic), then insert the needle into the jugular vain, taking ordinary precautions, reasepsis, to make sure the needle is in the vein, press the fingers into the vien below the needle; this will force blood up and out through the needle. Next, attach the tubing to the needle and funnel, and pour the solution into the fun-

nel, which is held higher than the needle. Allow the solution to run into the vein (it will do this quite readily) until the animal begins to sway and bend at the knees, and hocks, then (unless a prolonged operation is intended) stop the administration of the drug; this is best done by disconnecting the tubing from the needle (Never pull the needle out of the vein while the tube is full of the solution.); now flush out the needle with blood by pressure on the vein below; withdraw it, and steady the animal's head as he goes down, which he does almost at once. He will stay down, and can be rolled into, or trussed, in any position desired, being quite limp and helpless.

The horse and mule do not seem to be inconvenienced, if a considerable amount of air is allowed to get into the vein, and, the danger of phlebitis, thrombosis, etc., appears to be almost unknown.

CAPTAIN THOS. CHILDS, A. V. C.
Toronto, Can.

ANTHRAX CARRIED BY FLIES

The illustration shows one of the many cases of anthrax in horses that came under my observation during the summer and fall of 1918.

I will not explain in detail, as I presume all veterinarians are familiar with anthrax and its symptoms. In this case the edema and swelling persisted for nearly three months. The animal was treated with Cutter's anti-anthrax serum, receiving in all 750 c. c. The highest temperature recorded was 106° F. In five days it was down to normal. The serum was given in three doses: 250 c. c. the first day, 250 the second day, 250 the third day, 90 c. c. of which was injected directly into the swelling, shown in figure three by dots, each dot representing an injection of 30 c. c. anti-anthrax serum.

The infection was thought to be due to the bite of horse-flies. (*Tabanus atratus*). These flies which were especially prevalent last summer were believed to be the cause of many cases of anthrax infection in horses.

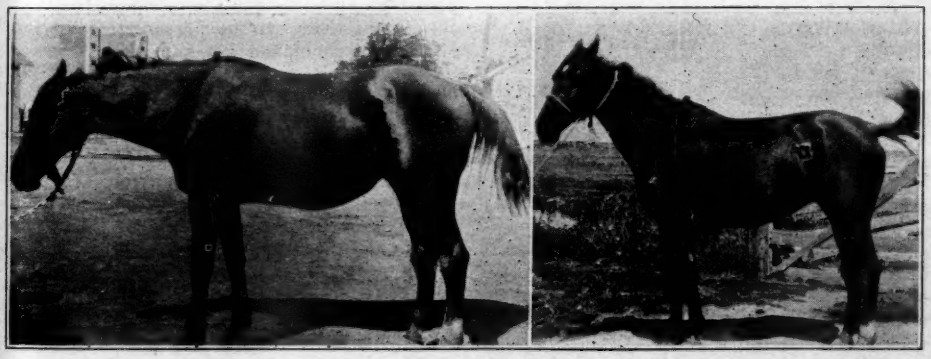
D. Mattrocce,
Div. Vet. for Miller & Lux, Inc.
Los Banos, Cal.

LARGE DOSES OF VIRUS OFTEN ADVISABLE*

I have been much interested in the discussion of the treatment of hogs with the various bacterins under the various conditions reported.

I am located in Kansas, where the hog cholera control work is under government supervision. I have now and then come across pigs that were not doing well, and the owner will frequently tell us that the pigs did all right until they were four or five weeks old, when something happened and they stopped growing. When seen two or three months later, these pigs appear stunted. thickened, and if one scrapes the ear with the finger it will bleed. We find the ends of the The hair is rough, the edges of the ears are tails dried up, and sometimes we find what is called bull-nose, sniffles or sores around the mouth. The question arises, what are we going to do with that herd. One man will say it is mixed infection. Another calls it cholera, others call it necrophorus infection, necrobacillosus, paratyphoid. These various diagnoses are put up to us and we have to do the best we can under the circumstances. Our main object is to get results. We have found in treating herds of this kind that if we give them large doses of serum and 4 or 6 c. c. of virus, we get good results. In four weeks they are eating and growing in first class shape. We have secured these results in not only one herd but in hundreds of herds.

*From a discussion at the thirty-seventh annual meeting, Illinois Veterinary Medical Association, Chicago, December, 1918.



The picture on the left shows a horse with anthrax. The edema and swelling are clearly shown. The second picture shows the animal after recovery.

We get the best results when we take 40-pound hogs and give them 100 c. c. of serum and 5 c. c. of virus, then go away and not return for five or six weeks, when the owner will tell us that they are all right and have overcome the condition.

B. W. Murphy.

Topeka, Kan.

ETHICAL RELATION OF THE VETERINARY SPECIALIST AND THE GENERAL PRACTITIONER

The advent of the abortion and sterility specialist; dental, lameness, fistula, canine and feline specialists; the state live-stock sanitary inspector; and in some sections the county agricultural agent, conflicts with the interests of the general practitioner. The specialist in human medical practice usually confines himself or herself to one or more specialties, generally to office or hospital practice. Others specialize an hour or two a day in office or hospital remote from their main or general offices. Thus there is maintained a well marked distinction, avoiding conflict with any general or ordinary practice.

The veterinary specialist is comparatively new and perhaps ill-defined in this country. However, I have encountered all those enumerated, except the county agricultural agent, and the latter does not attempt to practice veterinary medicine and surgery in Pennsylvania. The dentists generally adhere to their line, while the fistula and lameness experts seek all lines of practice. The canine and feline specialists generally confine themselves to their lines and hospitals, yet some maintain general practices also.

State live-stock sanitary inspectors and general practitioners occasionally meet in the performance of their duties. B. A. I. men and general practitioners meet occasionally in the accredited herd work. Tact and ethics should prevent friction and injustice to all concerned in these various groups.

At one time I had been treating the ailing live stock on a large farm, and an abortion specialist was brought in to treat some cows. I observed his methods, but did not attempt to advise or interfere with his specialties or his line of treatment. While treating a heifer and a calf on this farm, a B. A. I. man happened to be there on accredited herd duty, also the abortion specialist, who took complete charge of my calf patient which was suffering from "scours" and later died. The specialist claimed that hairballs in the stomach caused death, contrary to his original diagnosis that the trouble was due to something that the calf had eaten while with the other calves in the pen. He generously left the heifer to me to treat. She was a very valuable animal, shipped from New York state for breeding purposes. She recovered and was shipped back home.

The dairyman and the B. A. I. man advised me that the calf was going to die under the changed treatment. They considered that the specialist had treated me very unjustly, and told me that I had better stay away from the sick calf or he would blame me for the death if I reapplied my treatment. Hutyra and Marek are authorities on hair-balls in calves' stomachs.

I still believe that Dean Hoskins' lectures on ethics and business methods, as delivered in the University of Pennsylvania Veterinary School, ought to be collected and published in book form for the benefit of the "rank and file" in active practice.

James A. Waugh.

Pittsburgh, Pa.

EQUINE INFLUENZA*

Equine influenza, pink eye, cattarrhal fever, or shipping fever as it is termed, is one of the most important diseases that we are confronted with in the practice of veterinary medicine, owing to the fact that all shipping points, as well as stables and other places where horses are assembled in considerable numbers, seem to be infected, and while the mortality is not high in proportion to the number affected, the economic loss is very large as the animals are run down in condition, weakened and debilitated to such an extent that they are unfit for use for several weeks and if succeeded by some of the complications that frequently follow, they may be incapacitated for several months.

Equine influenza may be defined as a contagious febrile disease, either of an acute or subacute character, accompanied by dullness, high fever, and usually cough and sore throat, swelling of the limbs and torpidity of the liver, indicated by the jaundiced appearance of the conjunctiva and visible mucous membranes. The highly contagious nature of influenza makes it extremely difficult to contend with.

It is the dread of the horsedealer and the great scourge of the horse market. Convalescent animals seem to be distributors of the disease to some extent, as well as those in the acute stages, and even recovered animals may spread the infection. Some authorities claim that animals that have recovered from the disease are immune for a long period. In fact, they say there is good reason to consider them permanently immune. Twenty-five and thirty years ago, I may say this was my opinion, but today it is not.

A considerable amount of bacterial investigation and experimentation so far has not definitely settled the cause of the disease.

*Presented at meeting of Mississippi Valley V. M. Assn., Galesburg, Ill., Jan., 1919.

These experimentations have been carried on by a careful study of the bacteria present in the outbreaks and also by artificial inoculation, and now the generally accepted theory is that equine influenza is caused by a filtrable virus, and if we are to accept this theory we are led to believe that this filtrable virus is present in the blood and no doubt in other fluids of the body.

The period of incubation may be said to be from three to six days, but in exceptional cases it has been known to run as long as fourteen or fifteen days. It is usually ushered in with chill, followed by a rapid rise of temperature to 104° to 106° F. and an increased pulse followed by dullness, lassitude and diminished appetite. The affected animal usually remains standing, and shows no desire to lie down unless abdominal complications set in.

A very prominent symptom in the majority of cases is a red and inflamed condition of the conjunctiva and swelling of the eyelids. The dropsical manifestations extend to the abdomen and limbs. Respiration is accelerated, and the cough, at first dry and painful, gradually becomes moist and is followed by a mucopurulent discharge from the nostrils. In the early stages there is usually constipation followed in some cases by a fetid diarrhea. The urine in all cases is scanty and highly colored, is ropy and contains large quantities of albumen.

A great many peculiar phenomena present themselves in an outbreak of equine influenza. There may be as sequels, pneumonia, purpura hemorrhagica, meningitis, nephritis, cystitis, laminitis, and articular rheumatism.

Perhaps the most serious of these complications is pneumonia, which owing to the debilitated condition of the animal and the very feeble resistance offered usually terminates fatally. Another serious sequel of equine influenza is purpura hemorrhagica, which while not as fatal as pneumonia, is always very tedious and causes considerable loss of time and depletion of the animal's condition. Roaring is another sequel of this disease which reduces the value of the animal 50 per cent or more.

The most practical methods of prevention that can be used in controlling influenza is the thorough disinfection and fumigation of stables, pens, stockyards and railroad cars, the same as for hog cholera. Some practitioners lay great stress on the use of bacterins as a prophylactic treatment before shipment and, if possible, before exposure.

I, personally, have not had the success with bacterins that many practitioners claim for them and I could name more than one patron that is "down and out on Neilson" and one client that doesn't want to even speak to me today because he lost a horse with pneumonia after I had injected his herd with bacterins almost a decade ago.

I believe if some of our bacteriologists would produce a serum and virus the same as hog cholera serum and virus is produced, we would have a much more satisfactory prophylactic treatment.

My treatment for equine influenza is good care, elimination, stimulation, and counter-irritation according to the case and conditions.

W. G. Neilson.

Monmouth, Ill.

RECTOVAGINAL FISTULA AND RECTOVAGINAL FISSURE

A valuable young brood mare, while foaling, ruptured the perineum from the os outward. Feces become lodged in the vagina and cause the mare to strain. She ran in the pasture with foal all summer and seemed well. The owner worked her two days this fall, but she strained constantly, finally causing inversion of the bladder. This I treated with success.

The owner now wishes me to operate to reunite the passages. Can this be done successfully? Any information as to handling such cases will be greatly appreciated.—M. H. T., Man.

REPLY: The inquirer does not make it clear whether he has to deal with a rectovaginal fistula, an opening between the rectum and the vagina and not involving the perineum or the sphincter ani or whether his case is one of rectovaginal fissure in which the tear uniting the rectum and the vagina extends to and includes the perineum, making a direct communication between the anus and the vulva and extending forward, a varying distance up to twelve inches.

The treatment in either case is the same in principle, though offering somewhat more difficulties in the rectovaginal fistula than in the rectovaginal fissure, notwithstanding a greater amount of tissue is involved in the latter.

Although failures sometimes occur even under the most skillful hands, the following operation to reunite these tissues is successful in the great majority of cases, and we should say the prognosis of the case above described is very good.

The operation should be carried out briefly as follows:

First, profound anesthesia; narcosis will not do, since any irritation of these parts starts violent straining that not only greatly delays the operation, but renders practically impossible the careful technic that is necessary. The rectum must be emptied as far forward as possible and the parts cleaned thoroughly and kept clean. Next the sphincter ani must be divided superiorly, carrying the incision

from the anus to the under surface of the tail. It will be noted that there is a cul-de-sac here that is entirely obliterated by relaxation of the sphincter ani during defecation, but when the sphincter is contracted, the distance is about two inches from the anus to the under surface of the tail and thus represents the length of the incision. The anus and the incision must then be widely dilated by assistants, either with tissue forceps or tapes passed through the sphincter on either side near the incision. This gives the operator ample room in which to work.

In chronic cases, such as the one described above, all of the scar tissue must be dissected away. Not only from both edges of the rectal membranes and both edges of the vaginal membranes, but all the organized connective tissue between these structures and in the perineal tissue must be dissected out until the normal connective tissue of these parts is reached. The membranes of the rectum and of the vagina are then sutured separately, using very strong suture material, employing uninterrupted sutures and placing them close together. The outer (non-mucous) surface of both membranes must, of course, be approximated. Similar sutures are used for the perineum and for the sphincter ani. Linen, silk or catgut may be used for these sutures. If the latter is used, it must be at least twenty-day gut, since from eighteen to twenty days are required for the union between these tissues to become firm enough to withstand the strain. The gut suture has the advantage of not having to be removed later.

The incision made from the anus to the tail will heal spontaneously after some weeks. It is necessary, not only to give the operator more room to work and the opportunity to carry out a better technic in cleaning the parts and approximating the surfaces, but it is absolutely essential to prevent a strain upon the sutures resulting from filling of the rectum with feces. So long as this incision remains unhealed defecation is involuntary and pressure in the rectum is avoided. This is a sine qua non of success in the operation and without this, incision can be obtained only with difficulty by rectal injections several times daily and by careful dieting, a tedious procedure that is not likely to be carried out and one would not be far wrong in saying that the prognosis of the operation without the incision through the sphincter ani is only about 10 per cent as good as where the incision is made.

Where one is called upon to treat a rectovaginal fistula or a rectovaginal fissure as soon as it occurs, the technic of the operation is somewhat different. There is scar tissue present and a single row of sutures, each suture extending from the inner surface of the rectum to the inner surface of the vagina, is used.

No after-care is required for this operation other than at first daily, and later less frequent applications of tincture of iodin to the sutures, the aim being to prevent stitch abcesses. In the beginning full strength tincture of iodin may be used. Later, Lugol's solution should be applied, diluted first to 50 per cent, then to 25 per cent and even weaker solutions.

A PECULIAR ATTACK OF AZOTURIA

Having on more than one occasion received valuable help from your "Queries and Answers" department, and as I am somewhat in the dark regarding one of my cases, I submit it, in the hope that some of your readers may be able to shed some light on the matter.

December 14 I was called to the hospital about 7 a. m. to see a bay gelding, which the owner said was sick. It seemed to be in good condition, and apparently normal, except for somewhat hurried respiration, and slight quivering in the region of the crural muscles. These symtoms and the history caused me to make a diagnosis of azoturia. As the horse was apparently quiet, preparations were made to withdraw the urine, but when well under way, the animal began to show excitement, "knuckled over" on both fetlocks, walked in this position about 100 yards, and finally went down. The urine which was drawn immediately, was coffee-colored. Gelsemium was administered to control delirium, a physic ball given and the patient made comfortable.

Potassium acetate and spirits of nitrous ether were given as diuretics, together with a little digitalis.

Nothing of note happened until the sixth day, when he began to get up and down with assistance per tail, but did not stay up for any length of time. On the eighth day he could get up unassisted, and did so for four consecutive days. Noting the improvement, half the dose of diuretics was given, but on the thirteenth day the horse was as bad as ever, could not rise, even with help. The full dose of diuretics was again given, and some improvement noted, but progress was very slow and the heart rate never dropped below 65. The urine was voided without help and was constantly of a distinct orange color, and contained a large quantity of sediment. Conditions continued about the same: appetite good, drank well, bowels loose, and the animal seemingly in fair condition. Still he was unable to stand. He seemed willing but the power seemed lacking.

As marked atrophy of the crural muscles had taken place, thinking that there might be weakness of these groups, I injected tincture of iodin

into them and applied a blister externally—this was on the twenty-sixth day.

On the twenty-sixth day, the animal suddenly developed convulsions, and chloral hydrate was administered to control delirium. I made a diagnosis of acute congestion of the cerebrum. The animal died while under influence of the chloral. On the morning of the twenty-eighth day, the heart rate increased to 80 and continued until at the time of the death it was between 140 and 160, but regular.

The spirits of nitrous ether was discontinued on the sixth day, and the fluid extract of digitalis increased from two to six drams a day for the last four days. The feed consisted of alfalfa and prairie hay and bran mashes.

What I would like to know is what caused the relapse after apparently improving so much Was this not a long time to have an animal down and still do well, with only one decubital sore on one forearm? While an autopsy was not possible, I opened the cranial cavity, but the meninges and brain showed no inflammation, yet in taking out the brain substance there was about a half pint of hemorrhagic exudate left in the cavity. Where did this come from and what was the cause?

Was my dose of digitalis too large? The horse weighed about 1,300 pounds.

Just before it died, and afterwards also, the horse bled considerably from the left nostril, but not from the right. What was the cause?

I would like to have comments from some older practitioner to help clear up these points.—C. G. R., Okla.

STERILITY IN CATTLE

Having read the articles in the Journal on "Sterility" by Drs. Hallman and DeVine, I will relate something of my experience with this trouble.

Since 1908, I have each year treated cattle for sterility, varying from a few head to 100 to 150 a day.

I omit the uterine treatments because I consider it very difficult to pass a uterine catheter, sometimes I have been unable to do so. I believe the originator of the uterine treatment took it direct from human surgery and did not consider the differences in the anatomy sufficiently, besides there is some risk of spreading vaginal and uterine diseases if the catheter is not thoroughly sterilized for each animal.

The use of the uterine method is strictly a specialist's work and will in the hands of us general practitioners prove very impractical and often result in failure, and most of us will abandon it in a short time, going over to the ovarian treatment and will adhere to it in the future and get better results.

One planning to do such work, should first learn to diagnose pregnancy early. He should be able to diagnose it at the fourth or fifth week for heifers and the sixth or seventh week for older cows, otherwise he is likely to have bad luck at times.

In discovering the primary cause, there appears to be a fertile field for our meat inspectors who handle so many sterile cattle throughout the year. If they would make a close examination of the uterus, vagina and ovaries of a considerable number of cows, especially heifers, some interesting facts could be secured.

Edward Raven.

Luck, Wis.

ECHOES OF EARLY DAYS OF THE ILLINOIS ASSOCIATION

Perusal of an article on page 30 of the February Journal, under the title of "An Example to Emulate," a report of the secretary of the Illinois State Veterinary Medical Association, carried me back to the days of 1890 to 1895, those critical years in the veterinary profession of Illinois, and also of the United States. The panic of '93 cast its influence over the next five years, and as a profession we were in the period of transition from the old horse doctor era into that new age of the veterinary surgeon. Veterinarians were a new genus, so to speak, in the community in which they located, and were viewed as some strange animal whose coming might either prove a pest or a blessing, the future holding the only answer.

Those were the days when a few of the faithful wended their way to Chicago annually, during the week of the Fat Stock Show, and held at the old Sherman House, the early meetings of this association giant of the 20th century. We met at this especial time that the country members might avail themselves of the special railroad rates granted for this important event, otherwise many of us would have found it impossible to attend, as railroad fares were an important item to many of us who were endeavoring to make ends meet by practice alone.

The Illinois Association, now grown so strong, was sure some incubator baby, but thanks to the careful nursing of "the old guard," who stood sponsor for its existence, they have seen it grow and prosper and its influence expand far beyond their fondest dreams.

One of the surprising things to me, after casting my eyes over the list of those pioneers, is the fact that there are so many left who helped to shape the destiny of this great association of this great state, and what a satisfaction it must be to them now as they slip over the summit and descend the slope to

meet life's setting sun, to feel that they were faithful to the trust.

We need mention no names, but every one of that period whose eyes shall scan these lines, will recall those days and voice his gratitude for having had an opportunity to do his part during the critical formative period.

Long may the association live and prosper, and may her influence broaden, and may she live up to the high ideals and standards set by her founders and those who nursed her through her tender years, for we had ideals in those days as now, and we set them high, too, and the splendid standing of the veterinary profession of today, of which we are so proud, is but the natural result of those early aspirations.

JOHN L. TYLER.

Pomona, Cal.

A BANDAGE FOR STOCKING

A veterinary friend who suffers from varicose veins in his leg is using a medicated bandage which might be advantageously used in veterinary practice. It might work well on swelled legs in race horses in training, or even on sprained ligaments and tendons. The prescription is as follows:

℞

Zinc oxid.	℥I
Gelatin	℥I
Glycerin	℥II
Aqua bulli. q. s.	℥II

Heat in a sand bath, apply on bandage over affected parts and wrap snugly—at least two layers, after applying—tincture of iodin.

J. A. WAUGH.

Pittsburgh, Pa.

ESTRUM FAILURE FOLLOWING PARTURITION

In almost every bulletin one picks up these days, there will be found an article or two on failure of cattle coming in heat following normal calving, dystocia, or normal calving where it was necessary for the placental membrane to be removed mechanically. Many articles are written regarding treatment of such conditions, some of which are very exhaustive and mostly of mechanical character, such as vaginal and uterine irrigations, also manipulation and massage of the ovaries through the rectum.

One author claims that retention of the placenta following calving is a sequel of contagious abortion. This last claim will be refuted by most veterinarians, however, for they have often removed afterbirths from cattle following normal calving, that later carried their calves to full time and cleaned themselves, and in the herd they belong in, no abortions occurred among the other cattle, and they also cleaned themselves following calving.

When it comes to treatment for cattle that fail to come in heat, more attention should be given at first to medicinal, rather than to mechanical treatment. In my practice, I have treated a number of cattle for this ailment and the following prescription has given excellent results:

Rx. Tinct. cantharides	℥ III
Fldext. Nux vomica	℥ II
Aqua q. s.	Ō I

Sig. Three tablespoonfuls in pint water, three times daily.

This treatment should continue about three days, bringing desired results from the second to the tenth day. I have treated cattle that have failed to show any signs of estrum for from six to fifteen months after calving that were cured by this treatment, became pregnant and carried their calves to full time.

F. C. MECKSTROTH.

St. Mary's, Ohio.

HEMORRHAGIC SEPTICEMIA IN SWINE*

Swine plague is a specific infectious disease of swine, caused by the bacillus suisepticus, and is characterized by catarrhal and necrotic pneumonia with or without a fibrinous pleurisy. The only exception to this is where it occurs in the septicemic form. Swine plague is not so fatal or so wide spread as cholera. It occurs sporadically, and rarely assumes an epizootic form. The percentage of loss in affected herds varies markedly, reaching as high as 75 per cent in some instances. The bacillus suisepticus is a short non-sporulating non-motile bipolar-staining organism. It is easily destroyed by weak antiseptics, but its vitality is prolonged to five or even fifteen days when protected by soil, muck or water when not exposed to sunlight. The B. suicepticus is frequently found in the respiratory passages of normal swine. The virulence of swine plague is variable, in the most severe outbreaks it is transmitted from diseased to susceptible swine rapidly. Transmission takes place by way of the respiratory organs, digestive tract or skin.

Swine plague appears in animals suffering from cholera or any hog with depleted vitality. Except for the septicemic type, the course of swine plague is slow as compared with hog cholera. The period of incubation is of short duration, rarely exceeding two or three days. The septicemic type is ushered in suddenly with a high temperature, rarely exceeding 105° F., poor appetite, weakness and disinclination to move. The blush of the skin is due to hyperemia. This form is very fatal, its course rarely exceeding

*Presented at the 37th annual meeting of the Illinois Veterinary Medical Ass'n., Chicago, December, 1918.

twelve hours. The ordinary form is evidenced by the usual symptoms of pneumonia: short, dry, spasmodic cough, dyspnea, temperature 105° F., mucous or mucopurulent nasal discharge, poor appetite, and constipation. As the disease progresses breathing becomes more difficult and extreme weakness and emaciation ensue, if the animal lives long enough. The skin usually shows blotches of pink or red and there may be conjunctivitis. The acute form usually terminates fatally in about a week. The chronic form is evidenced by spasmodic cough, temperature about 103 or 104° F., poor appetite, emaciation, the animal dying of exhaustion in from four to eight weeks.

Differential diagnosis: Swine plague is slower to spread than hog cholera. Affected animals show no tendency to bury themselves in litter. They come to their feed more readily and have a brighter appearance, and on the whole, do not appear to be so sick as cholera-infected hogs, until just before death.

Autopsy: The lung lesions in hog cholera are identical with those of croupous pneumonia and in the later stages of necrosis; pleuritic lesions are frequently present in swine plague. Verminous pneumonia can be differentiated from swine plague by the fact that the former disease occurs only in young pigs.

Treatment: Prevention by the enforcement of sanitary regulations is important. The spread of the disease seems to be favored by dry weather. The pens should be sprinkled with disinfected solution. Swine plague (Bacillus suisepticus) bacterin is the sheet anchor. The dose is about forty-five billion killed organisms.

F. B. Rowan.

Rockford, Ill.

THYMOL FOR SCLEROSTOMA

In practicing for a period of about thirty years, I have bumped up against some hard propositions, and one of them was *Sclerastoma equinum*, the little parasite we have had so much trouble with during the past ten years.

I tried every remedy that I could think of that would destroy parasites—turpentine and oil of areca nut, santonin, calomel, all of which destroyed the parasites in the digestive tract, but I was not getting the desired results, the horses kept on dying just the same.

I was at a loss how to elimiate the parasites from the muscles and the blood. In talking to my family physcian regarding these parasites, he suggested the use of crystals of thymol, stating that it was a specific for the hookworm in man, the symptoms being much the same in both cases, the patient lingering long after marked symptoms are shown before death ensues.

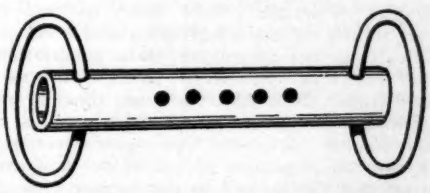
I started out with my grip well loaded with crystals of thymol well pulverized—one-half ounce in a No. 10 capsule. No food was given the horse for twenty-four hours, and a purgative was given twelve hours before giving the thymol. A No. 1 capsule will hold one-half ounce well pulverized, so I give two capsules for the first dose and two more in two hours, making two ounces in all for an adult horse. For a yearling I give two doses of one capsule each, two hours apart and follow up with Fowler's solution—one ounce twice a day for ten days. I have treated eighty animals in this manner during the past year, and lost only seven. Many of the cases treated were down and had to be tailed up in the morning.

Colo, Iowa. J. N. Cozzens.

BIT FOR TONGUE-SUCKING STALLION

I note on page 50 of the January issue, a subscriber asks for a remedy for a tongue-sucking stallion. I have seen a special bit used effectively. It is made as follows:

Take a piece of gas-pipe, about seven inches long. Drill a hole in each end, through which



put rings, as in the drawing. Next drill four or five holes in the center of the bit, as shown. This bit works in such cases with positive success. It is safe and inexpensive and the results are worth while.

S. R. Howard.

Hillsboro, Ohio.

RESTORES SYNOVIA

In referring to various works on joint troubles, I have been unable to find anything relative to restoring synovia. They give treatment for open joints, etc., but fail to tell how to restore the water.

I will cite a little experience which I had, trusting that it will be of benefit to some of your readers, as well as to some of the M.D.'s who seem to be as much at sea in the matter as any of us. For several years, without a failure, I have used collodion, which is nothing but soluble gun cotton, dissolved in ether and alcohol, applying with a suitable hypodermic needle and syringe, after the wound is healed. I warm the collodion in the syringe by placing the syringe in hot water, so that it runs through the needle easily.

I have used this on many horses and cows and have yet to be disappointed in the results. I also gave it to an M.D., who tried it on a man's

knee and got $500 for his cure and then asked me what it was.

Whether the gun-cotton stops ferment or whether it assists nature to restore the synovia, I am unable to say, but one thing is sure, there will be no stiff joint. If you doubt its efficiency try it.

F. A. HARDEN.

Fallon, Nev.

THE COUNTY AGENT CLASSIFIED

As per request for discussion of the versatile individual, called by some, farm demonstrator, county agent, and by others, names that I dare not mention, I will say, that in my opinion, there has been quite enough discussion. Now let us have some real action. But the question arises, through what channels? The first to enter the veterinarian's mind, is that great "referee" in all things veterinary, the United States Bureau of Animal Industry. Cannot the various veterinary associations look to it for help? The B. A. I. and its members have asked for and received help in their legislation and local political matters from the state associations and individual members. Still, as far as I can learn, there has been no concentrated effort on the part of the B. A. I. to assist in this matter. It is the opinion of some, still I sincerely hope that it will never be proved true, that the B. A. I. is not immune from invasion or even control by the laity. So, why should not the B. A. I. and the state associations get closer together on these matters? As the old adage goes, "The cow needs her tail in fly time."

As for the county agent, I remember some eleven years ago, the first invasion of our county by this particular organism. At that time, little was known of its origin, but it was believed to be spontaneous. This germ entered our office with a very peculiar motility, apparently propelled by flagella, and informed us that it was the farm demonstrator and live stock adviser and that its services were free.

Being interested in bacteriology, we gave it a very close, microscopic "once" over, but found it indeed hard to classify. We finally decided, after closer study, that its classification should be that of spirillum, due to the many curves and twists shown. It was rigged out in a celluloid collar, a beautiful flaming red necktie, snuff-colored derby hat and in addition, complexion and hair a few shades lighter than the tie, sprinkled over with a few handfuls of very bright freckles, two of which we found upon closer observation, to be eyes.

It informed us during our conversation, that it had recently 'got its pintment" through its political popularity. In the past few years this organism having become more plentiful, and having had an opportunity to study it more closely, we have come to the following conclusions:

The organism may develop spontaneously, grows well on political media, very resistant to soap, criticism and public opinion, grows well and thrives in any temperature, in any climate, north or south. Lately, more modern methods are being used for its development. We now have our state agricultural schools as incubators, and after a six weeks' inoculation on a mixed media of thirty-six hours of veterinary science and the remainder in farm bulletins and politics, the latter preponderating, it develops into its characteristic type with increased virulence, and finally goes forth, armed with a vaccinating outfit and a knowledge that he or his department cannot be held responsible for his mistakes, seeking whom and what he may devour. And the good honest farmer, suffering from the same hallucination that his grandfather did when buying the "gold brick," or something for nothing, falls an easy prey.

After all of our sarcasm and ridicule the fact still remains, the county agent is still with us and we have made no real progress as to his elimination from veterinary practice. There is no question but what there is a great field for the county agent along agricultural lines, productive of good for any community and, personally, I would like to see in every county in our state a graduate agriculturist, as these men realize that the few hours spent on veterinary science given in their agricultural schools does not qualify them as veterinarians.

Let us hope in the future to have a graduated instead of a "politicated" county agent.

X. G. M.

SERUM FOR FILTRABLE VIRUS DISEASE POSSIBLY IMPROVED BY SECONDARY INFECTIONS

I personally have never been able to understand why the B. A. I. inspectors or the Washington authorities ruled that the virus hogs should be absolutely free from any pathological lesions. Serum producers have absolutely lost their individuality. They are merely making serum according to the man who reads about it in a book. Virus pigs must come on the premises without any elevation of temperature. They must be killed at a certain time regardless of whether the producers think they are ripe or not. If they have a temperature of 104 or 105° F., they are killed. The point I wish to make is this: In the old days we used to take the hog when he was ripe and he was then posted and we usually found plenty of lesions we used

to regard as hog cholera. Perhaps the lesions were not due to the filterable virus but were just so many evidences of secondary infection. Perhaps this gave us all of the things that the serum of the present time lacks in dealing with hog cholera and the mixed infections we hear so much about. Perhaps a lesionless virus hog does not contain what we should have to make the real hypers.

A. T. PETERS.

Springfield, Ill.

VETERINARIAN MAKES SUPERIOR COUNTY AGENT

I want to call your attention to one innovation that has been adopted in Wisconsin with regard to the county agents. For want of better material we appointed a veterinarian in one county as county agent. He has demonstrated beyond any shadow of doubt that his administration in the county has been far superior to that of any of his colleagues, not only from a sanitary standpoint, but also from an efficiency standpoint. He has done for Calumet County, Wisconsin, more in one year than a number of the other county agents have done for their counties in five years and that should hold a lesson for us. Sooner or later, we must come to the adoption of the district or county health officer system, and the sooner we put such matters as tuberculosis, hog cholera and all infectious diseases in charge of county veterinary health officers, the sooner we will get at the real eradication of contagious diseases.

Madison, Wis. O. E. ELIASON.

REMOVAL OF PLACENTA

I have read several articles in the Journal regarding removal of the placenta, and it seems that there is considerable doubt as to the best method to pursue. I shall endeavor to explain my method which, from many years experience, I can recommend as absolutely safe and successful.

In my practice in Denmark from 1875-1880, I had a great number of cases of retained placenta and treated them as I had been taught at the college, namely, removing the placenta and lavaging the uterus with various kinds of antiseptic solutions, with more or less success, particularly where the case was three to four days old. The removal of the placenta, three to four days old, is very unpleasant work and so is the washing out of the uterus, besides it is rather expensive to the owner.

I seldom had any trouble in cases where I was called within about twenty-four hours after parturition, and when I omitted the douching, substituting a few doses of uterine sedatives at the same time giving orders that the cow should lie with the hindquarters low, no trouble ensued.

In order to persuade my clients to call me within twenty-four hours, I told them what an unpleasant task it was to remove the placenta after it had commenced to putrefy and that I would charge a double fee after the twenty-four hours and would not guarantee success. This helped; it touched the pocketbook and that is always a good persuader.

In order to be absolutely successful in removing the placenta, one must of necessity be familiar with the proper technic, and there is some little knack in it, but anyone can do it when he knows how. My method is as follows: I first wash my hands well, and rub my hands and arms with vaseline. As there is almost always a portion of the placenta outside, I grasp this with one hand, hold it tight, but do not pull, and introduce the other hand into the uterus. The cow generally objects somewhat to the first touch of the hand, but when your arm is well greased and you proceed gently, she will soon stand perfectly still. Many cows eat right along when I am working. Once the hand enters the uterus, I grasp one of the cotyledons with my two middle fingers around the stalk, squeezing the cotyledon gently for the purpose of loosening the membrane somewhat, then with my forefinger on top of the cotyledon near the edge and with my thumb I try to loosen the placenta at the edge; this done, I move my thumb or forefinger from side to side between the placenta and the cotyledon lifting the chorionic tufts out of the cotyledonic crypts and soon one cotyledon is cleared. Before leaving the cleaned cotyledon, I again give it a gentle squeeze in order to press out any possible matter contained therein. This procedure takes time, generally from one half to two hours to do a perfect job, but it pays, it gives satisfaction to yourself and to the owner. Sometimes it is a little difficult to reach the last part in the anterior part of the horn, but I overcome that trouble by letting the cow step down with its hind feet in the gutter and place a board or some straw under its front feet, this position will, combined with a gentle pull on the placenta held in the hand outside bring it within easy reach and the task is soon finished.

I then direct that the cow be placed so that it will lie with the hindquarters low for three or four days and be given a good big dose of whisky and the following uterine sedative prescription:

℞ Flxt. Viburnum Opulii Comp, ℥iii.

Sig: Give one dessert spoonful in half a pint of coffee three times a day.

I have used this method for many years and I have yet to be called a second time to such cases. By using this method, one need not be afraid of removing the placenta from the most delicate fine-bred cow, and the main cause of metritis will be eliminated.

As to the cause of retained placenta, we are still guessing. I am inclined to think it is because the blood circulation has not been promptly diverted from the uterus immediately after parturition, because I always find the cotyledons large but not sore to the touch and no other signs of local or general inflammation, that is, within twenty-four to thirty-six hours afterward.

R. C. JUHL.

Tottenville, N. J.

INGUINAL HERNIA

I received a call to see a sick mule, which had been sick about eight hours. The owner said he was easier than he had been when first taken sick, but was very restless. (This mule was in harness when taken sick and had worked about two and one-half hours.) After two or three hours he seemed to be in less pain, but wanted to lie down and would roll at times. He refused feed and water. Temperature, 102°; pulse, 50; peristaltic sound could be heard at times. I gave him a few half-grain doses of arecolin and strychnin and later tried eserin. The peristaltic sound improved but was not normal, seemed to cause more pain. The scrotum was enlarged. The owner said, the mule had a water seed and was normal on that side. During the night passed the stomach-tube, got a little gas. Gave several quarts of raw linseed oil as owner had plenty of raw oil, but without results. I suspected inguinal hernia on the right side and told the owner. The mule died two days later. On autopsy we found intestinal hernia into the right inguinal canal. Had the owner not been so certain he was right an operation might have saved the mule.

Winchester, Kans. D. M. DILL.

NEW LIGHT ON BOVINE TUBERCULOSIS

Recent federal investigations of tuberculosis under normal farm conditions continue to incriminate rodents, especially mice, as possible spreaders of the disease. Following are briefly the results of last year's studies on tuberculosis by experts of the Bureau of Animal Industry. Thorough cleaning of stables from which tuberculous animals have been removed has been shown to be of greater importance in making buildings safe for healthy animals than the use of chemical germicides. When the cleaning is properly and thoroughly done the quantity of disinfectant needed is relatively small. Mice which have ingested tuberculous material are especially to be suspected as possible spreaders of the disease, as tubercle bacilli multiply enormously in their bodies and are scattered freely with their feces. Results obtained again emphasize that this destructive disease would decline materially if relatively simple precautions against its spread were more commonly understood and practiced by owners of live stock. Among the principal measures urged by the bureau are sunny, well-ventilated barns, sanitary surroundings, application of the tuberculin test to all cattle when the health of the herd is doubtful, prompt removal of any animals which are affected, and the introduction into the herd of only such animals as are known to be free from the disease.

CHRONOLOGICAL RECORD OF THE FOUNDING OF THE EXISTING VETERINARY COLLEGES OF THE WORLD*

Location	Founded	Location	Founded
Lyons	1761	Bruxelles	1833
Alfort	1765	Lisbon	1823
Copenhagen	1773	Warshauer	1840
Dresden	1774	Parme	1844
Vienna	1777	Sarragosee	1848
Budapest	1786	Dorpat	1848
Berlin	1790	Kharkow	1851
Munich	1720	New York	1857
London	1791	Bucarest	1861
Milan	1791	Toronto	1862
Madrid	1793	Glasgow	1863
Bologne	1802	Turin	1869
Berne	1806	Edinburgh (New)	1873
Naples	1815	Kasan	1874
Pise	1815	Lahore	1876
Zurich	1820	Calcutta	1876
Stockholm	1821	Komabo-Tokio	1877
Stuttgart	1821	Ames, Iowa	1879
Utrecht	1821	Tokio	1880
Edinburgh	1823	Lemberg	1881
Toulouse	1828	Chicago	1883
Geisen	1828	Pullman, Wash.	1900
Philadelphia	1884	Manhattan, Kan.	1905
Columbus, Ohio	1885	Ft. Collins, Colo.	1907
Constantinople	1889	Athens, Georgia	1910
Bombay	1893	College Station, Texas	1918
Ithaca	1894		

*Not all American schools replied to our request for information as to the date of their founding.

FOOT-AND-MOUTH DISEASE AGAIN THREATENS

Following notification from British authorities that foot-and-mouth disease lately has broken out in York, England, the Bureau of Animal Industry has cancelled all permits for importation of cattle, sheep, and swine from that country and is taking special precautions for the inspection and quarantine of such animals now en route to the United States. The outbreak in England was confirmed January 10, and reports were transmitted at once to the United States. Canadian officials also have been notified.

This is the second time within six months that the disease has appeared in England. The bureau is informed that British veterinarians have quarantined the infected area and the outbreak is under control, yet because of the constant communication between England and America it is extremely important that veterinarians and stock owners in the United States keep a sharp watch for the disease.

FOX TERRIER LIVES 22 DAYS WITHOUT FOOD OR WATER

A fox terrier, about a year old was placed in a shoe box, about 2x2x3 feet, bedded with excelsior and containing a ½ tin of milk and crackers. The lid was nailed on securely and the box expressed from New York December 19 to a family in Pittsburgh as a present for a child.

Repeated inquiries were made for it at the express office but it did not arrive until January 11, when it was found in a closed car with no heat. It was almost starved and was very weak. I was called and gave it condensed milk and whisky. I saw it later and found it much improved. When I called again I found some one had taken the dog away and I was unable to trace the case further.

Pittsburgh. JAS. A. WAUGH.

INFECTED TENDON SHEATHS*

In country practice treating infected sheaths and bursae is very unpleasant. For we are confronted with everything favorable for germ development. The sanitary conditions as a rule are only fair at the best, but usually very poor.

As a rule the client in a rural district is a very busy man. He has his daily routine of labors to perform, and on our central Illinois farms, especially during seasons when field work is on hand the owner of an animal is best satisfied with a line of care and treatment which bothers him the least.

The average caretaker of such affected animals does not realize the importance of sanitation. The animal is usually kept in a stall which is only cleaned out when you insist, or else turned into a pasture of weeds, or a dusty paddock.

If a country practitioner orders such cases to his hospital, he, as a rule, does not have the time to properly treat them himself.

Sheaths and bursa infections may be classed as follows, according to their seriousness to the animal, and difficulty to the attending veterinarian:

FIRST. Navicular bursa, which is a small bursae inside the foot. It being a small sheath lying between the tendinous portion of the flexor pedis perforans and the navicular bone. This bursa forms two cul-de-sacs, one extending upward almost to the inferior cul-de-sac of the sesamoidean sheath, and the other extending under the inferior navicular ligament.

SECOND. The sesamoidean sheath between the tendons of the flexor pedis perforans and perforatus extending upward to about the top of the lower third of the large metatarsal bone, with cul-de-sacs extending down over the posterior portion of the fetlock into the pastern.

THIRD. A bursa between the tendon of the gluteus maximus and convexity at the proximal end of the femur just in front of the trochanter major.

FOURTH. Bursa between the tendon of the flexor brachii and bicipital groove at proximal end of humerus.

FIFTH. Bursa at cap of hock between the tendon of the flexor pedis perforatus and gastrocnemius, where the perforatus winds over the gastrocnemius.

SIXTH. Small bursa at the anterior surface of the fetlock under the extensor pedis tendon.

There are also other less important sheaths and bursae which the country practitioner is seldom called upon to treat.

The navicular bursa is usually infected at the time a nail or other object pierces the sole or frog extending through the sensitive foot and tendon into the bursa. If such be the case the animal shows great pain, very lame, even carries the affected foot, leg is swollen to the knee or hock as case may be. Breathing is very rapid, pulse running from fifty to seventy-five per minute, temperature from 103° to 105° F. Animal is off feed, and usually lies down most of the time.

The discharge from wound is synovial mixed with whitish or even yellowish pus. The amount of synovial discharge depends upon the size of the opening into the bursa, and the amount of pus depends, of course, upon the kind and virulence of the infection present. Abscesses will even form in the superior cul-de-sac opening at the pastern above the heel.

Under our rural conditions which have already been mentioned, I think the best way to handle this affection is to trim away a considerable amount of horn around the opening, then trim away a small portion of the underlying structures, but taking great care not to further injure the bursa. By doing this one obtains a fair drainage. Then clean up the foot as well as possible. Use hot fomentations, long continued and often; each time after using the hot fomentations apply a quantity of some good antiseptic solution to the wound where the horn has been removed. But do not inject into the bursa. Afterwards apply a little Lugol's solution or a solution of iodin crystals dissolved in sulphuric ether, and apply a wet antiseptic pack loosely over the whole foot if weather conditions will

*Read at Ill. V. M. A. meeting, Chi., Dec., 1918.

permit. Of if the wound is of several days' standing hot fomentations may not be used. But instead use the antiseptics; then pack the bottom of the foot with linseed meal made into the consistency of dough. It will keep the sole moist, keep dirt out, and the discharge will escape from the wound into this pack. The pack, if properly made, will be there the next time the foot is treated.

Place the animal in a roomy boxstall, well bedded. If it has any appetite at all give small quantity of a nourishing diet. Give nux vomica and echinacea and see that the bowels are kept in a laxative condition.

At times bacterins seem to help while at others no special benefit seems to be derived from their use.

With infection of the sesamoidean sheath the animal shows great pain, is very lame, the leg greatly swollen, at times even to the body, breathing is very rapid, pulse and temperature about same as in navicular bursal infection. The animal is off feed and lies down most of the time.

This affection manifests itself in the form of abscesses, opening or having to be opened anywhere from the lower cul-de-sacs in the upper half of the posterior aspect of the pastern to the top of the sheath at the lower end of the middle third of the cannon. These abscesses must be given a good drainage. Apply hot fomentations to the whole leg below the knee or hock. Then thoroughly flush the sheath with antiseptic solution, and inject Lugol's solution. Treat in this manner for a few days. After that discontinue injections of any kind into the sheath. Keep the drainage openings clean and the discharge off the surrounding tissue.

Infection of the bursa under the tendon of the gluteus maximus causes great lameness with a large amount of swelling over the affected area. The animal has that peculiar "three cornered gait." Abscess of this bursa must be opened freely to procure drainage. Inject antiseptic solutions for a time, then keep the opening and the surrounding tissues clean. This form of lameness seldom disappears even after animal's wound is healed until one or even at times several blisters have been applied over the affected area.

Infection or an abscess of the bursa under the tendon of the flexor brachii also makes an animal very lame with much swelling over affected parts. This like the preceding bursa must be opened and a good drainage affected, flushed thoroughly with antiseptic solutions for a while and usually even blistered before lameness disappears.

Almost all other infected sheaths and bursae are treated in the same manner. First make sure that good drainage is established, flush with antiseptic solutions, keep wound and all surrounding tissues clean, but don't overdo things by injecting antiseptics of any kind into a sheath or bursa over too long a period. The best motto is: Good drainage, clean surroundings, keep wound clean, and give nature a chance.

C. J. WRIGHT, M.D.C.

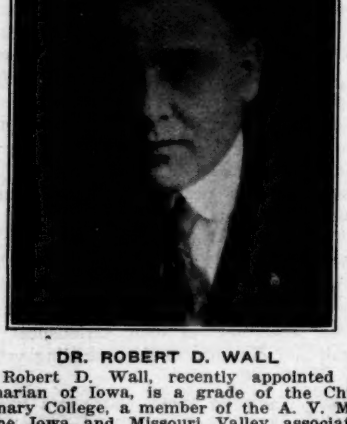
Cerro Gordo, Ill.

SPECIAL CORRESPONDENCE.

Washington, D. C., Feb. 22.—Officers of the national association of veterinarians of the Bureau of Animal Industry declare that the exodus of veterinarians from the bureau to commercial positions, because of the inadequate salaries paid in the bureau, not only directly threatens the efficiency of the B. A. I. but thereby indirectly imperils the welfare of the live stock industry and the meat supply of the United States.

It is declared that federal veterinarians engaged in meat inspection in general receive less than, and in some cases not half as much as the packing houses pay their butchers, beside whom, and under the same conditions, the federal men work the same number of hours.

The present entrance salary is $1,500 and even after long service, a majority of the inspectors do not get more than $1,620. The recent increase of $240 is a relief to the older men in the service, but so far as concerns the younger men, it is said, is offset by the added cost, in recent years, of preparation for the service. The qualifications made prerequisite to appointment have been made more exacting, the college requirement being four years now where it was three formerly.



DR. ROBERT D. WALL

Dr. Robert D. Wall, recently appointed state veterinarian of Iowa, is a grade of the Chicago Veterinary College, a member of the A. V. M. A., and the Iowa and Missouri Valley associations. Dr. Wall's work for the past several years as assistant to State Veterinarian J. I. Gibson has especially fitted him for his new office. He has also served on the examining board and college faculties of the A. V. M. A. for the past three years.

ARMY VETERINARY CORPS MISCELLANY

(*Continued from page 128*)

Major W. G. Turner to Montgomery, Ala., 9th Div., Camp Sheridan; Capt. D. J. Meador to Linda Vista, Cal., Camp Kearny; 2d Lieut. J. A. O'Connell to Fort Sam Houston, Texas, with 14th Cav.; C. Hoard to Camp Fordyce, Texas, 4th Cav.

Capt. G. E. Bartholomees to Camp Beauregard, Alexandria, La.

Second Lieut. J. B. Taylor to Fort Apache, Ariz., with 10th Cav.

Capt. P. O. Cooper to Camp Devens.

Capt. E. P. Coburn to Camp Dodge.

Capt. F. X. Maguire to Fort Oglethorpe as post veterinarian.

First Lieut. C. E. Richardson, to Camp Greene, Charlotte, N. C.

First Lieut. F. L. Holycross, to Fort Sam Houston, Texas, for duty as post veterinarian.

Second Lieut. W. W. Yard, to Wagon Co. No. 3, Camp Hill, Va.

First Lieuts.: J. A. McCallan, to Fort Ringgold; F. G. Martin, to auxiliary remount depot, Camp Lewis; G. A. Little, to Camp Travis; F. B. Lynch, to Fort Oglethorpe as assistant to post veterinarian and meat inspector; L. E. Miller, to 16th cavalry, Mercedes, Tex.; J. A. Hill, to Fort Bliss; H. R. Yost, to 8th cavalry, Marfa, Tex.; H. K. Moore, to Camp Logan; M. D. Loy and E. M. Curley, to surgeon general's office, Washington; E. S. Markham, to Camp Johnston; H. E. Hess, to Manila, P. I.; F. D. S. Houston, to Camp Beauregard; W. W. Policoff, to Raritan arsenal; R. Fenstermacher, to Camp Travis as assistant to camp veterinarian and meat inspector; W. H. Phalen, to El Paso with 9th Engineers; B. Johnson, to Fort Monroe; E. O. Hobson, to Fort Leavenworth as post veterinarian and meat inspector; J. G. Fuller, to Marfa, Tex.; C. S. Pickering, to Mercedes, Tex.; R. L. South and G. W. Lies, to commanding general, southern department, for instructions.

1st Lt. John T. Connelly, Camp Devens, Ayer, Mass.

2nd Lt. Harrison W. Ayers, Camp Upton, Long Island, N. Y.

2nd Lt. Claude M. Dee, Camp Upton, Long Island, N. Y.

2nd Lt. Francis F. Dolan, Ft. Clark, Texas.

2nd Lt. Paul H. Eagan, Camp Wadsworth, Spartansburg, S. C.

2nd Lt. Cecil Edler, Camp Wadsworth, S. C.

2nd Lt. Christian C. Ettling, Camp Hancock, Augusta, Ga.

2nd Lt. Albert Feers, Camp McClelland, Aniston, Ala.

2nd Lt. John L. Franz, Camp Sevier, Greenville, S. C.

2nd Lt. Carl E. Freeman, Camp Sheridan, Montgomery, Ala.

2nd Lt. Harry C. Fullington, Camp Gordon, Chamlee, Ga.

2nd Lt. Walter H. Hauer, Camp Pike, Little Rock, Ark.

2nd Lt. John P. Major, Camp Logan, Houston, Texas.

2nd Lt. Anthony J. Matter, Camp Cody, Deming, N. M.

2nd Lt. Earl A. McCain, Camp Funston, Ft. Riley, Kans.

2nd Lt. John E. McCoy, Camp Funston, Kans.

2nd Lt. Charles J. Miller, Camp Travis, Ft. Sam Houston, Texas.

2nd Lt. Harry B. Mitchell, Camp Travis.

2nd Lt. Claude A. Moore, Fort Bliss, Texas.

2nd Lt. Melvin Edward Norman, Fort Bliss.

Capt. O'Hara, Camp Bowie, Texas.

Capt. Chauncey Cook, Camp Zachary Taylor.

Major W. P. Hill, Remount, Camp Meade, Md.

Capt. Shelby, Camp Veterinarian, Camp Meade, Md.

1st Lt. Herbert, Camp Veterinarian, Camp Meade, Md.

MOVEMENTS OF RETURNING ARMY VETERINARIANS

The veterinary corps is releasing its men as rapidly as they can be spared, but the work is moving somewhat deliberately because the army has not disposed of a large number of horses, and the animals in the service require veterinary attention, regardless of the convenience of the men.

The 16th Division Headquarters received telegraphic orders Jan. 17th to demobilize the division, which has been nearly accomplished.

Dr. Theodore B. Doll, formerly of The Plains, Va., is now with the British army, Advance Base Hospital, A. S. C., Bagdad, Mesopotomia, engaged in veterinary surgery.

Closely following upon the return to civil life, of Captain H. Ticehurst, of Morsemere, N. Y., himself and family were stricken with influenza.

Lt. J. P. Mack, recently stationed at Douglas, Ariz., having been honorably discharged, has returned to his practice in New York.

Dr. C. H. Hoekstra, formerly in the service at Camp Grant, has opened offices at Wood River, Ill.

Dr. A. C. Turner, having been honorably discharged, has returned to Galesburg, Ill., where he was formerly associated in practice with Dr. L. F. Brown.

Dr. Hogan has returned to his practice at Greenfield, Ia.

Dr. A. M. Ehle has resumed his practice at Oak Grove, Mo.

Dr. Jas. B. Boazman, of La Fayette, Ala., says he is enjoying "the best practice ever," since his return to civil life January 8.

Dr. Raymond Winters, having been released

from military service, has located at Moravia, N. Y.

Dr. Thomas Jones, of Athens, Ill., has located at Macomb, Ill.

Dr. E. A. Egmer, of Pullman, Wash., has located at Toppenish, Wash.

Dr. Robert Hunter, late of the veterinary base hospital, Ft. Sam Houston, has returned to his practice at Greensburg, Ind.

Dr. Thompson will resume practice at Guttenberg, Ia.

Dr. Clarence Brittell will resume practice at York, Neb., where he is associated with Dr. T. P. Rose.

Dr. H. L. Campbell has returned to his practice at Rochester, Ill.

Dr. Jones, of Lynchburg, O., has resumed his practice, following discharge from the service.

Dr. Hall Dempsey has opened offices at 532 Warren street, Huntington, Ind., and will resume his former practice.

Dr. C. A. Holbrook has returned to his practice at Louisa, Ky.

APPRECIATES GENEROUS SUPPORT

Referring to the splendid article and editorial in the last issue of the Journal, in support of the Rainey Amendment to the Agricultural Appropriation Bill, which provides for increasing the salaries of Bureau veterinarians, I have been informed that this amendment passed the House without a dissenting vote. It carries a provision for a permanent increase in the basic salaries for all Bureau veterinarians of $120, in addition to the Congressional allowance of $240 for the fiscal year 1920. In addition to this a provision is made to pay veterinarians in the Meat Inspection Division for overtime, which should be based on an eight-hour day.

I am leaving the Government service on February 18, 1919, which disqualifies me as an officer of the National Association of Bureau of Animal Industry Veterinarians. I desire to take this opportunity of expressing the appreciation of our Association to the Journal and through its columns to the many friends and organizations who have so generously supported our cause before Congress.

Fort Dodge, Ia. J. S. KOEN.

A new poisonous plant, the poison alkali brush (Tetradymia glabrata), was discovered during the year after having caused the poisoning of 1,100 sheep belonging to a single sheepman. Analyses of the tips of the brush showed the presence of 25.9 per cent soluble potash in the ash, equivalent to 2 per cent chlorid of potassium in the green twigs.—*Nevada Sta. Report.*

BOOK REVIEWS

The Cow

By Lieutenant G. H. Conn.
Formerly with the B. A. I.; 1st Lt. Veterinary Corps, U. S. A. Pages, 139. Published by Burton Publishing Co., Kansas City, Mo. Price, $1.00.

The author's experience as a country practitioner and the dearth of literature pertaining to the proper care and treatment of the cow in sickness and health, convinced him of the need of a book dealing exclusively with the subject of the cow.

The subject matter embraces the fundamental principles of sanitation and hygiene, the proper care and treatment of common diseases, the care of the dairy and dairy products, including municipal requirements and standardization.

The aim of the author is to point out ways and means for stock owners to get more out of their investments, by the employment of a better knowledge of the needs of the cow under given conditions—the instructions in the main being along the line of keeping the animals well.

Doctor Conn's experience as a farmer and stock-raiser, veterinary inspector, and more recently in the military service has afforded him opportunities for observation, research and experimentation which opportunities he has improved and now offers the knowledge thus acquired in this form. The book will be found equally useful to layman and practitioner, one of its aims being to stimulate cattle owners to realize the necessity of securing professional aid to treat diseased animals, thus eliminating preventable loss and insuring the increase in the production of food-producing animals, so necessary at this time.

Marie: "Medical Vocabulary"

English, French, Italian Medical Vocabulary. Pages, 112. Published by Blakiston's Son & Co., Philadelphia. Price, 50c.

This little book was specially aimed to provide the translation of terms, tables, etc., commonly in use "overseas" by physicians, nurses and others. It is especially valuable because the words and terms are not commonly found in ordinary dictionaries. Its compactness and size recommend it, as it may be readily slipped into the pocket. Since much of the aid work will continue for some time, this little book will doubtless continue to be much in demand.